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In this issue...

From time to time, CERES will issue a special report on major aspects of development, such as regional integration and the role of private investment. These reports will attempt to give an objective appraisal of the topic while, at the same time, raising live, controversial issues. Our first special report is in this issue — **India '68.**

Paul-Marc Henri

Why bring out a special report on India when agricultural production has been modernized and the vagaries of weather no longer weigh the balance?

Or is it still the same old story: record crops when the rains come at the right time, otherwise dependence on rapidly-shrinking world grain reserves and tight money markets? Has Indian agriculture changed and, if so, how? Is it possible to transform technology without a metamorphosis of the entire social structure?

We cannot ignore India: its enormous population, its dominant role in Asia, its insatiable thirst for capital and skills, its vast potential as a market for manufactured goods. India demands our constant attention.

Four articles in this issue give some of the answers to these questions and cover some aspects of India in transition in '68.

Amerlk Singh Cheema

The government's intensive area development program, in which resources for agriculture are concentrated on 114 selected areas, is described by **Claude Moisy** *on page 26. This program is a gamble — in which there is little alternative choice — which weighs the possibility of doubling agricultural production and creating development 'poles' against potential social and political unrest in the less-profitable, low-priority areas.*

Gilbert Etienne

Two such development areas are compared by **Gilbert Etienne** *on page 39. He suggests that socio-cultural obstacles to new methods are retarding progress and that there is a need to change existing social structures.*

Bihar State — associated in the eyes of the world with famine conditions — may soon produce a surplus, thanks to irrigation water and improved seeds supplied under the program. **A.S. Cheema,** *on page 37, foresees that more attention will have to be paid to problems of storage and credit.*

Hans Kristensen

A multilateral aid program has introduced higher-quality flocks and more efficient wool marketing to a depressed semiarid area not included in the intensive program. **John Williams,** *in the picture story on page 32, describes the changing life of the nomadic shepherds of Rajasthan State.*

How much waste in there in aid programs? **H.J. Kristensen** *discusses this controversial issue on page 44 and pleads for greater coordination between bilateral and multilateral programs.*

Pavel Fialkovsky

The article on page 47 by **Pavel Fialkovsky,** *a Soviet engineer who was project manager of a large multilateral aid project in Ceylon, offers some candid comments on waste — of both time and opportunity — as well as summarizing the accomplishments of this project.*

This issue starts off (on page 19) with a philosophical look at the development process by **Paul-Marc Henri**, *a man who has worked for most of his life with bilateral and multilateral programs. He comments on the various kinds of aid, the need for a world strategy, the role of private enterprise and summarizes the mainsprings of development*

Hans W. Singer

Articles in our last issue on some of these aspects — on a proposed global development plan by Jan Tinbergen and on post-UNCTAD by Janez Stanovnik — are discussed by **Hans Singer** *on page 51. Dr Singer, instrumental in aunching the U.N. Development Decade, believes that we are on the right path but that national and international aid programs must be coordinated more closely.*

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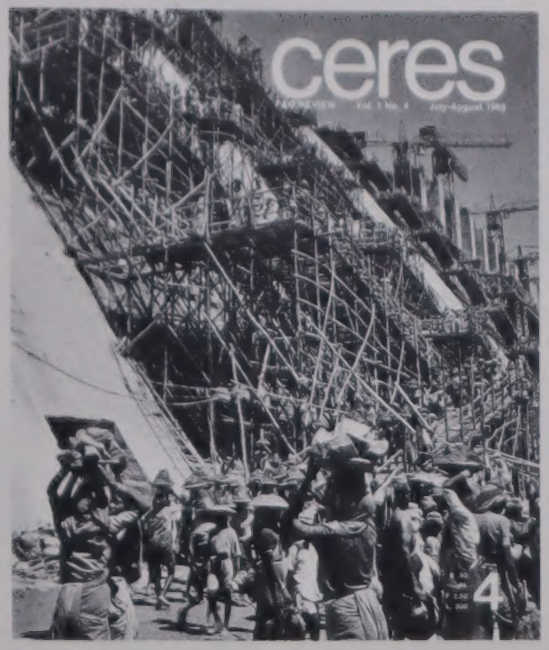

The mass of humanity is India's major natural resource. 520 million people must not only be fed but also gainfully employed.
Here, a natural combination of the two as human labor helps to build the Nagarjunasagar dam on the Krishna River (photo: A Pittet)

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LATIN AMERICA

■ *IDB loans to finance small-scale irrigation*

Mexico has just obtained a $426 million loan from IDB (Inter-American Development Bank) to finance 560 medium-sized irrigation works covering an area of 212,000 acres and benefiting 12 million inhabitants.

The overall national development plan calls for an investment of $3,335 million to increase the productivity of 750,000 acres of arable land.

This latest loan is in addition to $165.5 million borrowed in 1967. Together, the two loans are sufficient to finance 48% of the plan's first phase. Over the next four years, a further $1,225 million will be invested in the construction of 960 small irrigation networks covering an area of 22,000 acres.

■ *Not just sugarcane and cigars*

The Cuban government recently decided to decrease the country's dependence on sugar as the main export commodity by encouraging the production of other crops.

Crops which are completely new to Cuba, including asparagus and strawberries aimed at European markets, are being grown on an experimental irrigated farm covering some 3,000 acres. Vines have been planted with the aim of producing Cuba's first wine.

Some 150 million coffee trees have been planted in the Havana region.

■ *Playing for high stakes*

Colombia has been granted $33.5 million in aid for the coming year by the International Monetary Fund. This opens the way to negotiations for a further $200 million loan from a bank consortium comprising the International Bank for Reconstruction and Development (IBRD), the Inter-American Development Bank (IDB) and the U.S. Agency for International Development (AID).

ASIA

■ *Food aid counters cyclone damage*

Emergency food supplies — including maize, wheat flour and oil — have been sent by the World Food Program (WFP) to some 24,000 people left homeless and destitute in the Mauritius area in the wake of two cyclones.

Monique hit Rodriguez Island, close to Mauritius, at the beginning of the year. It decimated the maize harvest and destroyed two houses out of three. At the end of last year, Carmen had already destroyed 60% of the harvest and left four hundred people homeless.

The government of Mauritius has distributed building materials for house construction while the International Red Cross, France, the United Kingdom, the United States and other countries have also offered assistance.

■ *Self-sufficiency by 1970: Ayub Khan*

By 1970, Pakistan will be able to meet her own food needs and will no longer require foreign aid, President Ayub Khan announced recently.

He stated that rice production this year had increased by 14%, totaling 11 million tons. Wheat production for the same period was 5,400,000 tons — an all-time record.

■ *Population control to sustain exports*

The population of Thailand is increasing by one million people a year at a growth rate of 3.1%. Unless this rate is slowed down, the country will lose its position as the world's leading rice exporter, stated General Netr Khemayothin, secretary-general of the National Research Council, recently.

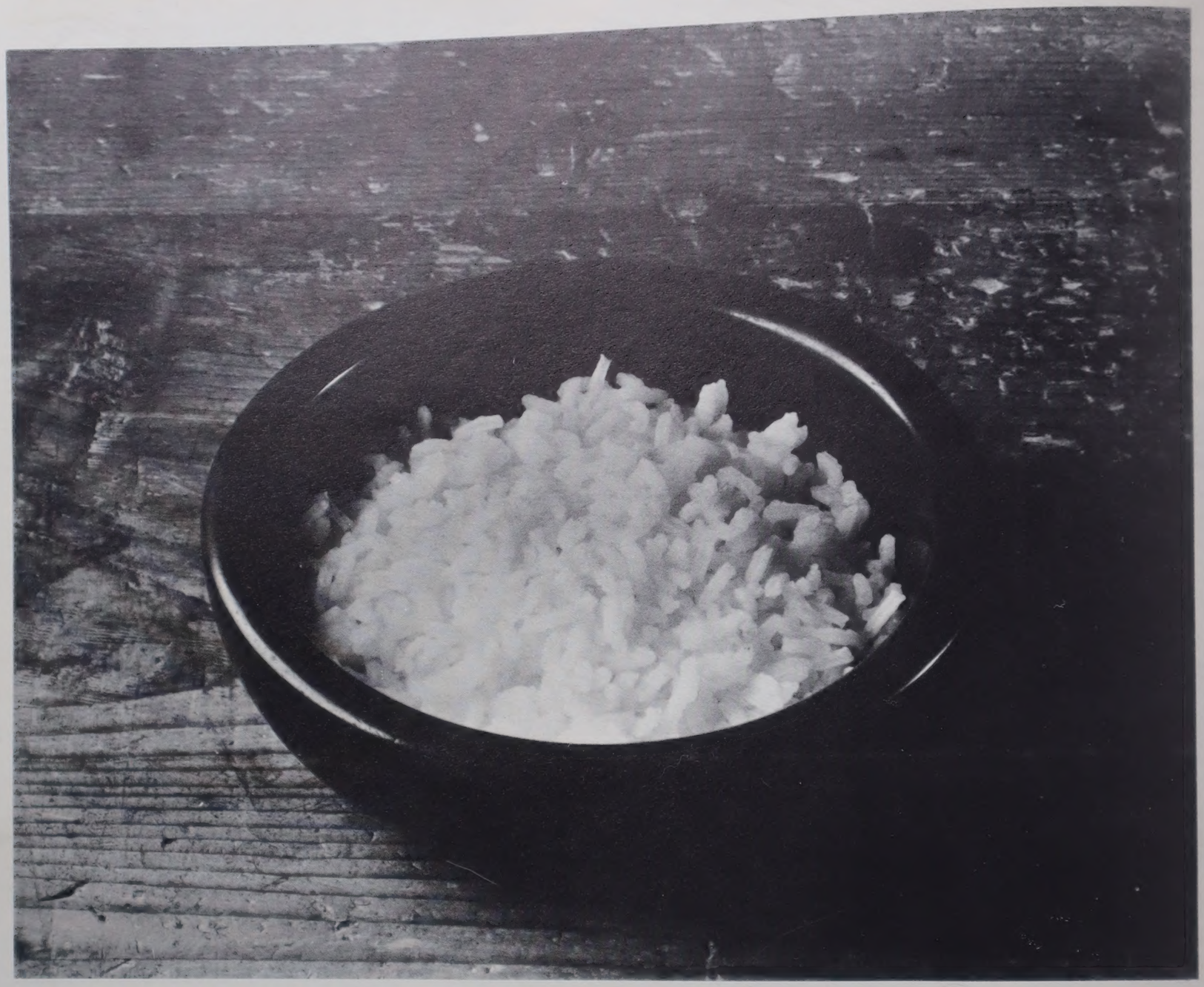
General Netr Khemayothin

■ *Uncertain financing for ADB's loan fund*

The Asian Development Bank, fresh from awarding its first regular loan — $5 million to Thailand's Industrial Finance Corporation — is now wrestling with problems of financial support and of restrictions which have been placed on this support.

The success of this regional bank will largely depend upon the amount of its agricultural development fund for " soft " loans (long-term loans with little or no interest charges). Some pledges towards the $400 million target figure have been forthcoming — Canada $25 million, Denmark $3 million, Netherlands $1.1 million and Japan $100 million — but the major pledge of $200 million from the United States is still stalled in Congress and, in any case, will only be released in amounts equal to the total contributions of other member countries. Canada has stated that the first use of its pledge (apart from interest) must be for Canadian goods and services.

Canada also wants to contribute $600,000 in technical



There are many ways to get more food from earth. The simplest is to provide the crops with the right nutrients without useless waste.

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assistance, one sixth in grants and the remainder in interest-free development loans to finance preinvestment feasibility studies on projects involving Canadian firms.

AFRICA

■ *130,000 tons of fertilizer a year*

The first fertilizer plant for French-speaking Black Africa has been inaugurated at M'Bao, near Dakar, by President Leopold Senghor, of Senegal.

The new plant, using phosphates from Taiba and Thies, will produce 130,000 tons a year. This will enable Senegal to export fertilizer to neighboring countries as domestic consumption, at present, is about 60,000 tons.

The plant was financed by the European Investment Bank, the Central Economic Cooperation Fund, the French Aid and Cooperation Fund, the National Development Bank of Senegal and the International Finance Company. Several French enterprises and a German enterprise have cooperated in the construction of the factory.

■ *Barriers lowered between EEC and E. Africa*

The July agreement signed by Kenya, Uganda and Tanzania raises to twenty-two the number of African nations associated with the Common Market.

The agreement provides for cuts in customs duties between the three countries and the members of the European Economic Community (EEC). For commodities moving from Africa to Europe this will mean the almost total abolition of customs barriers, though if imports of coffee, cloves and canned pineapple become too high they may be subject to quotas.

For goods going from Europe to Africa, the three countries are allowing cuts of 3 to 5% on 59 products representing 15% of these countries' European imports.

■ *The four corners of the desert*

Algeria and Tunisia — and two countries, Mali and Niger, separated from them by one of the world's largest deserts — are jointly studying the possibilities and advantages of a modern road across the Sahara.

A preliminary survey costing $50,000 has already been carried out. It concludes that construction of the highway would require some $100 million investment.

From Algiers, the proposed road would lead to Tamanrasset, 1,160 kilometers

to the south, where it would split into two branches: one to Tahou in Niger, 950 kilometers away; and the other to Gao in Mali, 1,070 kilometers away.

At present, north - south trade does not exceed 10,000 tons per annum: it is estimated that it would have to rise to 50,000-75,000 tons per annum to make the road a feasible economic proposition.

Can the volume of trade amongst the four countries be expanded to amortize the cost of this giant project? This will be established by a study to be carried out by the Trans - Sahara Liaison Committee. The study will cost $293,000, of which $241,900 will come from the UN Development Program, the rest to be paid by the four countries concerned.

■ *Africa's most important dam*

The Zambezi River in Mozambique will soon give birth to a giant hydroelectric plant expected to start operations in 1974.

It is to be built at Cabora Bassa and will be the world's fourth largest with an annual output of 18,000 million kilowatt hours. The Aswan dam produces 10,000 million kilowatt hours. Electric power will be available for cities as far away as Pretoria and Johannesburg.

This amount of power will make possible the exploitation of deposits of coal, copper, bauxite and titanium. Enough water will be caught and held to develop 2,500,000 hectares of farmland surrounding a 250 - kilometer-long artificial lake.

The Zambezi will be made navigable up to the frontier with Zambia. Irrigation and land reclamation and development will allow some farmers to settle in the area.

The project will be financed by foreign loans to be repaid by proceeds from the sale of electric power. The first phase of the project is to cost about $240 million. Three consortia — including Swedish, German, French, United States, Portuguese, Swiss, British and South African interests — are competing to carry out the project.

■ *Curbs on foreign-owned firms*

A recent policy statement by President Kenneth Kaunda, of Zambia, places majority shareholdings in 24 foreign-controlled companies — mostly retail outlets and small firms — in the hands of the state-owned Industrial Development Corporation.

President Kaunda

The big copper mining companies are untouched for the moment, except for new restrictions on the amount of capital which can be exported.

Despite this protectionist trend, President Kaunda has urged continued foreign investment in the mining, forestry and agricultural sectors.

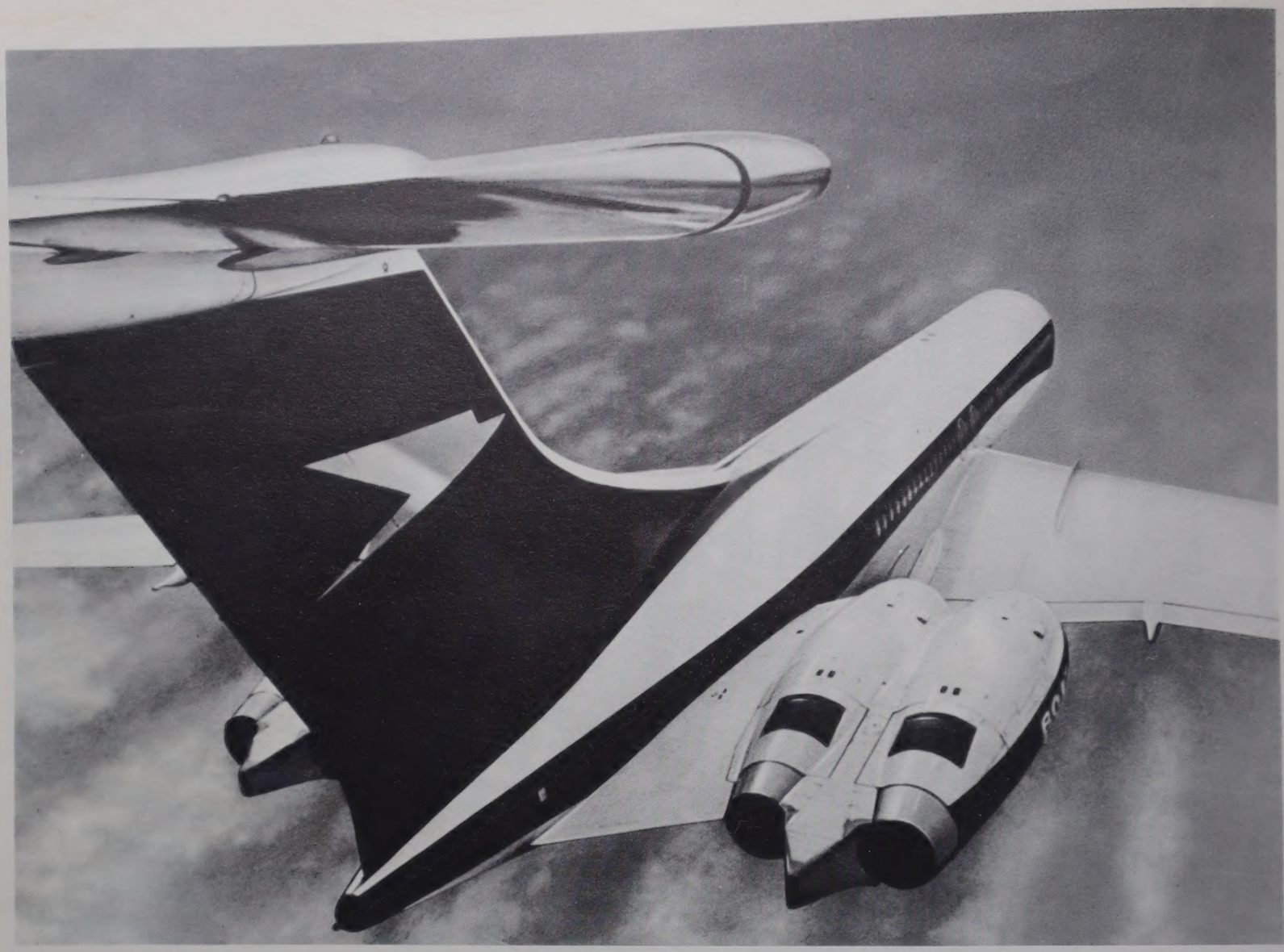
NORTH AMERICA

■ *$ 1,000 million increase in loan capability*

The lending power of the Inter-American Development Bank (IDB) was strengthened in June with a $412 million contribution from the United States as its share (42%) of a $1 thousand million increase in IDB capital. This amount, agreed to last year, will increase the "hard loan" lending capacity from the present $2.15 to $3.15 thousand million.

■ *More money in the third world kitty*

The developing country members of the International Monetary Fund (IMF) now have substantially increased drawing powers as a result of higher quotas and moderate withdrawals. The aggregate quotas of the developing countries rose from $2.9 thousand million in 1962 to $4.8 by the end of 1967: during the same period withdrawals increased by only $479 million.



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■ World Bank's search for more money

The World Bank is having some success with its recently-launched five-year lending projection. A little more than $800 million a year is at present being lent to the developing countries: it is hoped that this figure can be raised to more than $1,000 million, and this means finding new ways of borrowing money from the world's money markets.

The new World Bank President, Robert McNamara, has gained assurance from the Federal Republic of Germany that it will buy some $200 million in World Bank bonds before the end of 1969. Japan has decided to increase its pledge to the World Bank consortium to help Indonesia from $60 million to $110 million. The Bank recently borrowed $15 million in Saudi Arabia and hopes to find capital in other oil-rich areas.

There is also some possibility that three Eastern European countries — Romania, Czechoslovakia and Hungary — may join the World Bank group.

OCEANIA

■ A poor 1968 likely to follow an excellent 1967

Asian countries face serious setbacks to economic development because of the economic problems of the United States and some western European countries, according to the U.N. Economic Commission for Asia and the Far East (ECAFE), which met recently in Canberra.

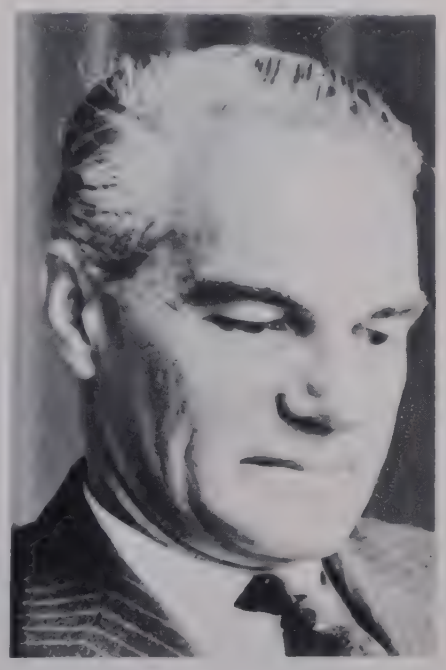
The Asian region as a whole showed a probable increase in gross domestic product from about 4% in 1966 to 8% in 1967 last year. 1967 was a year of agricultural recovery for some countries and a somewhat less-pronounced industrial recovery for others, according to the ECAFE report.

The situation still remains precarious, the report warns however, and such problems as devaluation and balance of payment deficits could retard the export prospects of many Asian countries. On balance, and on a cautious view, international trade in 1968 is likely to remain rather stagnant.

EUROPE

■ Can GATT help close the prosperity gap?

A Swiss, Olivier Long, has succeeded a Briton, Eric Wyndham White, as the head of GATT (General Agreement on Tariffs and Trade)



Olivier Long, new head of GATT

His main task will be to consolidate his predecessor's achievements, those long-drawn-out negotiations which led to the Kennedy Round agreements for the lowering of international customs barriers. With this result achieved, 'like the mountaineer checking his foothold,' GATT intends to study measures to facilitate trade between developed and developing nations through a system of special concessions.

Mr. Olivier Long, Ambassador in London for the Swiss Confederation since 1966, thinks that GATT has an important role to play in narrowing the prosperity gap.

■ Trade agreement amongst 'Group of 77'

India, the United Arab Republic and Yugoslavia recently signed an agreement on trade expansion and economic cooperation This provides for the exchange of special tariff concessions on customs duties involving over 500 products of export interest (including processed and semiprocessed fruit and vegetables).

The three signatory countries have left the agreement open, on a basis of mutual benefit, to any developing country which is a member of the " Group of 77."

■ Boerma: possibility of a breakthrough

There have been highly encouraging reports, recently, about revolutionary developments in agricultural production and the possibility that the world food crisis may be approaching a solution.

" These reports are circulating at the same time that other voices predict disaster as a result of inevitable famine. In view of this, it is necessary to take stock of the situation and evaluate the implications, " said FAO's Director-General, A.H. Boerma, in a statement in June on the world food situation.

" It is indeed true that we may be on the verge of a breakthrough in agriculture. According to FAO's preliminary estimates food production in 1967 rose by about 3% in the world as a whole and by almost 6% in the developing regions. Although these figures reflect the fact that the two preceding years were bad, the 6% rise in the developing regions is nevertheless unusually large. Not since 1956 has there been an increase approaching this magnitude; and then it was approximately 5%.

" Several factors were involved. One was much better weather. Another was that a number of governments in the last few years have been placing greater emphasis on agriculture in their development planning, and finally, through new advances in plant breeding, there has been the introduction of high-yielding varieties of cereals suited to wide areas of the tropics and subtropics. In some places, such as India and Pakistan the yields per acre of rice and wheat in certain localities have been more than doubled.

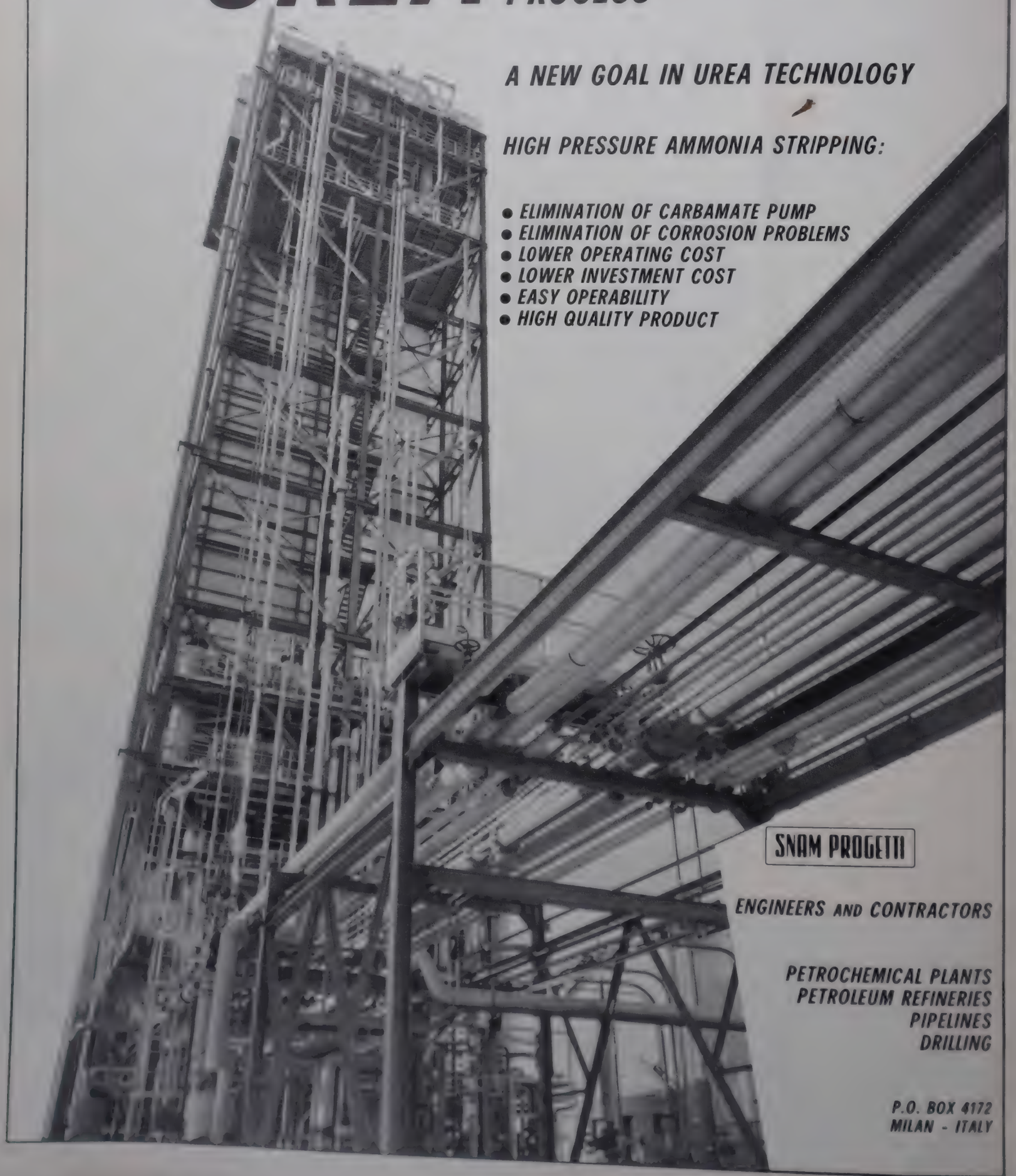
" We are now able to say that there is real hope, given the right conditions and provided the right steps are taken in the right sequence, that the food situation can be transformed at least in southern Asia, which contains the world's greatest concentration of people and where famine has so often stalked the land. . .

" As production increases, governments and farmers will be faced with storage problems for which they are not now prepared. Storage involves rodent and pest control, which is very difficult and without which much of what is gained can be lost," Mr. Boerma warned. . .

" There is another complicating factor, and that is the threat of continued uncontrolled population expansion, which could make a mockery of all the benefits that technical progress holds out for mankind," he continued. "To prevent this, family planning should become a built-in component of the vast infrastructure necessary for sustained economic development. Otherwise the fears expressed in the past could still come true. . ."

Francisco Aquino has taken up a five-year post as executive director of the World Food Programme. Mr. Aquino, from El Salvador, was formerly technical manager of the Inter-American Development Bank

UREA STRIPPING a new SNAM PROGETTI PROCESS



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opinion

daring innovations needed

From an editorial in Times of India.

From time to time serious-minded men take a hard look at tomorrow and make logical speculations based on current trends.

What they see often startles the little-informed, which only shows that all too few people have been able to appreciate the implications of the new technological revolution ushered in by breakthroughs in cybernetics, genetics, climatology, molecular chemistry and biology.

Even those who, in an abundant measure, enjoy the benefits of this revolution have not always correctly assessed its impact on human life, manners and thought.

A group of agricultural experts who recently peeped into the future confidently forecast that in another 30 years we shall have push-button farming. This is not mere fancy; all their arguments are based on facts known today.

Science, they say, will win the battle against climatic vagaries and pests. Fifteen-ton yields of wheat per hectare (four times the normal today), cattle embryo transplantation, electronic harvesting of crops, timed nutrient release with the help of chemically dressed fertilizer pellets, automated multipurpose machines which will do all the dirty work on the farm, and other sensational techniques are envisaged.

Tomorrow's farmer, in other words, will no longer have to toil hard in the relentless sun or despair of unpredictable or unfriendly weather.

The basic point here is that it is not circumspection and traditionalism but daring innovation that will bring about this further revolution and eradicate the specter of famine as effectively as some of the bacterial scourges have been overcome.

But all this to what end? That is easily answered. First of all, the very possibility of such a transformation in 30 years' time will eliminate the fear that man will outrun his food resources: it will also remove the persisting threat of global hunger...

...Not all our problems will be solved of course, but it will certainly mean turning our back on the current mood of pessimism and helplessness.

too much of a good thing

From The Food Problem of the Developing Countries, *by Thorkil Kristensen, secretary-general of OECD.*

...If loans obtained from abroad are used for good investments they should further, and not jeopardise, development. How, then, can the debt burden become a threat to further progress?

There are various reasons for this. In some cases the investments undertaken are not good, or the capital inflow is used to support an economic policy that permits consumption to grow too fast, so that productive capital is not created to the extent the foreign borrowing would have permitted. In fairness, it should be added that tying of aid sometimes forces the borrowing country to buy capital goods that are too expensive, relative to their quality, or to buy something that it is not desirable to invest in at the stage of development which the receiving contry has reached.

In other cases the rate of interest is too high. This problem is probably less important because good investments will normally yield a higher profit than even the market rates in the lending countries. The case for low interest rates is strong, however, because they introduce into the loan operation an element of grant, and there are very good reasons for this as an act of solidarity between rich and poor nations. In fact, it is regrettable that grants do not represent a larger part of the total flow of aid.

Very often the period of repayment is far too short. The development effort is something that brings about many of its results only in the course of some decades, or even generations. In the long run every good investment will increase the export capacity of a country, but often it may be in the very long run only

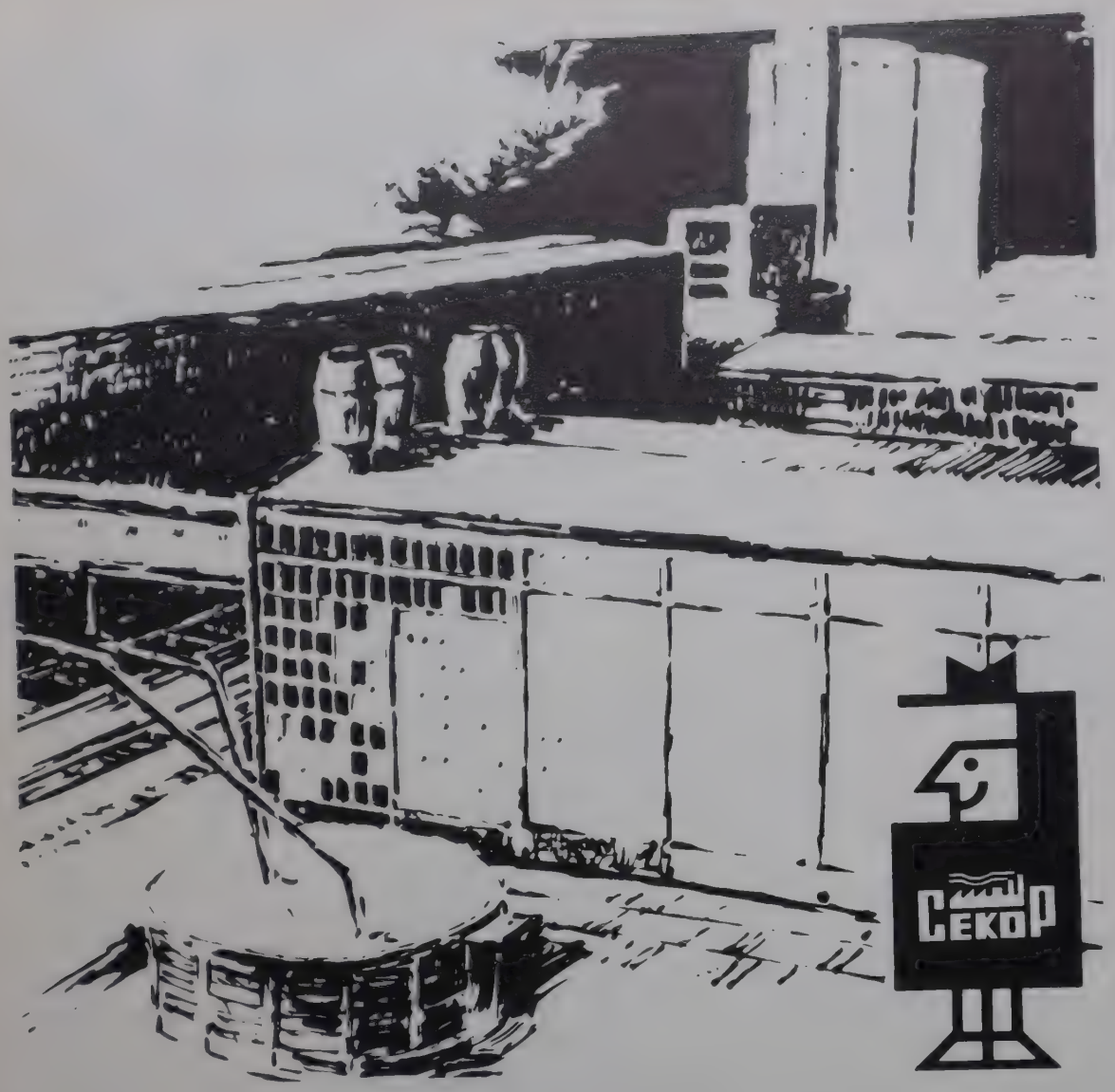
This brings us to what is probably the core of the debt problem. If the gross flow of aid is not increasing forever, the day will come in many countries when the annual amount of repayment is larger than the inflow of new aid. This means that many developing countries will become net exporters of capital to the rich countries. This does not only appear paradoxical. It will also be felt to be socially and politically harmful, and even unacceptable to public opinion in the donor countries, unless the receiving country has been particularly successful in its development efforts. In many countries population growth is likely to keep the income level rather low for a long time to come and, when social solidarity becomes more international than it is today, rich nations will not want to import capital from poorer nations.

The rescheduling of debts that is now taking place in one country after another will probably, in a number of cases, imply that loans on hard terms are converted into loans on soft terms and then, eventually, into grants.

Today, nobody can tell to what extent this will become necessary or desirable. The important thing in the near future is to keep the doors open by lengthening the repayment period of new loans and by contributing to rescheduling of old debts when appropriate. Debt service should, as far as possible, be prevented from hindering the necessary imports of food or of developing goods.

A developing country can, in many respects, be compared with a new enterprise that is building up its productive machinery by means of capital supplied from outside. Now, the capital supplied by shareholders is not to be repayed at all. It remains in the company. Similarly, much of the capital imported by less developed countries should not be repayed. It should remain as a good investment.

This will happen if capital inflow increasingly takes the form of private investment instead of official loans. Every sovereign country has it in its power to take measures that will prevent this from leading to foreign control of its economy and yet make such investment attractive...



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west-east trade

From the Latin-American edition of The Economist.

...So far as Latin America is concerned, the only real prospects it can hope for come from increased trade with the socialist countries which are, or are about to become, importers of agricultural products and food commodities. The drawbacks are difficulties of transport and problems of obtaining spare parts.

Furthermore, the Soviet system being what it is, both parties are obliged to use western currencies; and such currencies are expensive for Latin Americans. The real value of credit depends largely on the value placed on the products of the socialist countries by the countries which purchase them; and this is equally true for the countries with centrally-planned economies when they buy South American agricultural surpluses. An attempt is being made to get round these disadvantages by a proportional mixture of trade and barter.

Moreover, when a Latin-American country signs a contract with a socialist country, it has no way of estimating the actual net price it will receive for its products until it has negotiated the sale.

There is another difficulty: large-scale imports by socialist countries create deficits in the trade balance. Therefore, the Latin American countries are obliged to capitalize their credits: Brazil, for instance, has been able to amend its bilateral contract with the Soviet Union to include the right to use its credit in other eastern European countries; Argentina amassed $50 million in credits but found nothing that it needed to buy in eastern Europe.

To sum up, any serious analysis must take into account two significant factors: (1) the real possibilities that exist in the socialist countries for absorbing primary, and some secondary, production from Latin America; (2) the proportion of exports that the socialist countries are willing to finance using assistance credits. Clearly, the future growth of the eastern European market mainly depends on the growth rates of the planned economies and, in the final analysis, on the decisions of the planners.

down to the bare bones

rom the New York Times.

A Congress that is bent on cutting the fat out of this year's federal budget is down to the bones of the foreign-aid program and still hacking.

The House Foreign Affairs Committee has slashed $600 million from the administration's $2.9 billion request and Republicans are gunning for further cuts when the authorization bill reaches the House floor.

The committee's reduction is already too much — much too much. The aid agency is even now operating on a budget substantially below the 1% of gross national product pledged for the U.N.'s Decade of Development.

Any further cut in American foreign assistance is likely to be multiplied by similar reductions in the aid contributions of other developed countries which have tended to follow the United States lead. This would aggravate a critical shortage of international development resources when the gap between rich and poor nations is widening dangerously. It could destroy the hopes for agricultural progress raised by the success of new "miracle" seeds and precipitate development crises with serious political consequences in such key nations as India, Pakistan and Brazil.

For all its faults, foreign aid has been a vital factor in preserving hope and political stability in wide areas of the non-affluent, non-Communist world. It would be false economy for Congress to cut deeper into AID's already "bare bones" budget.

fastest growth in history

From an article in Business Week.

What hope do the underdeveloped nations of the world have of catching up with the 20th century?

In the more advanced western nations, the general public considers the outlook grim. This view is still shared by some economists, including Gunnar Myrdal, whose deeply pessimistic book about the future of South Asia was published recently *(see Ceres No. 3, page 60)*

But Myrdal appears to be in a distinct minority among his fellow economists. For one of the big changes in the profession in the last few years has been the emergence of considerable hope for the underdeveloped countries. The men best qualified to speak for this optimistic position belong to an elite group of economists at Harvard's Development Advisory Service (DAS).

"The growth rates the underdeveloped countries are turning in are the fastest in history," says Raymond Vernon, director of Harvard's Center for International Affairs of which DAS in part. "And a dozen countries could double those rates in five or six years," adds colleague Richard V. Gilbert...

...Between 1950 and 1965, real gross national product in the underdeveloped nations rose by an average of 4.7% a year. GNP growth in the U.S. from 1870 to 1913 is generally considered to be about 4%. What is more, DAS believes that the standards of measurement often understate the true rate of growth.

many ways of betrayal

From a joint statement by the bishops of Chile.

In the spirit of the Encyclical, *Populorum progressio*, we, the bishops of Chile, wish to draw attention to the two following problems:

Firstly: an urgent appeal must be launched to all those who transfer a large part of their incomes abroad "without thought of the manifest wrong" they do to their country. It must not be forgotten that there are many ways of betraying one's country and this is by no means the least serious.

Secondly: in confronting the complex problem of the flight of specialists we must differentiate between the motives which prompt such acts, although we must refrain from making superficial generalizations. However, if a specialist's emigration is motivated solely by the desire to increase his income above the level of what is really necessary, then this is a wilful limitation of the Chilean community's destiny. It is unjust because it involves a usurpation of rights engineers or doctors may be better paid in other countries, but they were trained at high cost in Chile so that they could build up the country or care for the thousands of children who have no medical services.

Chileans have the right to enjoy the benefits of such effort, and to demand that right. Certainly, specialists should be paid in proportion to their responsibilities and duties; but they cannot expect the same advantages which they might find in more developed societies.

If our own specialists abandon us while, at the same time, other countries send us specially trained people to help us overcome our difficulties, the result is both confusing and contradictory.

A document recently drawn up by many bishops of the third world contains a statement that concerns all Catholics: "Christians are normally called by God to live their lives in their own land, among their own people, in solidarity."

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RICE

Japan has announced that she plans to export 225,000 metric tons of surplus rice to developing countries out of a rice stock estimated at nearly 2 million tons. The United States has become the world's largest rice exporter (1,838,000 tons in 1967). The Philippines recently shipped 5 600 tons of rice to Indonesia, the first 'official' rice exports for a country which seems well within reach of self-sufficiency in rice. Some 40,000 acres of land have been opened up in Malaysia's Sarawak State under a $1 million fund to start irrigated rice production.

All these events illustrate the changing world pattern of rice production and exports: new producers are coming to the fore, some countries are about to reach self-sufficiency and demand is rising rapidly in others. The severe world shortage of rice over the past two years has been eased by a substantial increase in 1967 rice production. The volume of international trade in 1968 is expected to be slightly above the low levels of the preceding two years though, as demand is still strong, prices are likely to remain relatively high.

World production of paddy (rice) for 1967 is estimated at a record 180 million metric tons, according to FAO's study group on rice, which met recently in Rome. This estimate, which does not include Mainland China, North Korea or North Viet-Nam, represents a 13% increase over the 1966 estimate of 160 million tons and is 5% above the previous 1964 record level of 171 million tons.

More than four fifths of the overall increase has been in the developing countries and is due to increases in both acreage (due to higher prices) and yields (due to favorable weather and improved techniques). Some of the delegates reported that the development of new high-yielding varieties had opened up possibilities of increasing production.

World rice exports for 1967 were provisionally estimated at 6.8 million tons (milled rice equivalent) compared with 7.1 million tons in 1966. The volume of world exports in 1968 is likely to be slightly higher than last year, according to the FAO study group.

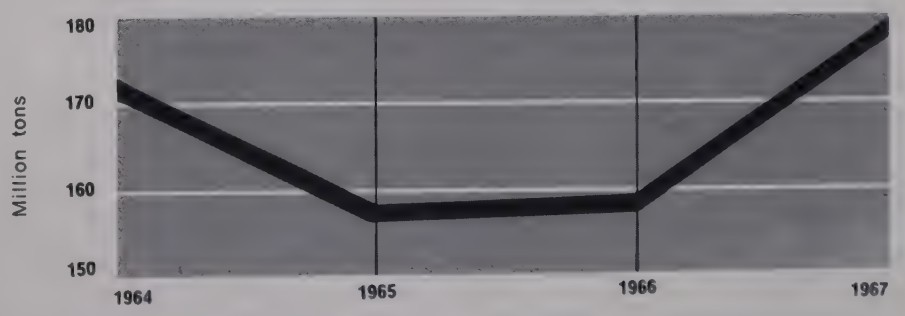
Record crops in Ceylon, India, Pakistan and the Philippines more than offset declines in Malaysia and the Republic of Korea. Output increased in Burma, Cambodia and Taiwan, though not in Thailand. Production in Latin America, Africa, the Near East and the centrally-planned economies was also higher. There were record crops in Japan, the United States and Australia as well as increased harvests in France and Italy

Mainland China's exports of rice in 1967 have been estimated at slightly more than 1 million tons, about 13% lower than in 1966, according to figures compiled by FAO. This decrease was due mostly to lower sales to Japan, Ceylon and Hong Kong which more than offset increased imports to Malaysia and Singapore. Mainland China, nevertheless, ranked as the world's third largest exporter of rice, after the United States and Thailand: its share of total world rice exports amounted to one sixth for the second successive year.

The 1968 outlook for Mainland China was equally optimistic. The 1967 rice crop has been estimated at about 8% higher than that of the previous year, and rice exports for 1968 were expected to be maintained well above the 1 million ton level. Mainland China's export earnings for rice in 1967 were estimat-

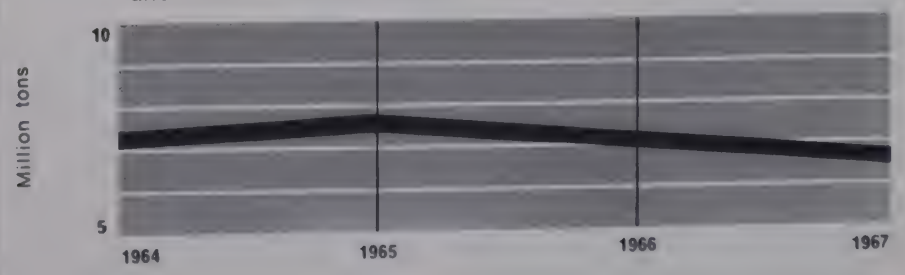
World paddy production

Excluding Mainland China, North Korea and North Vietnam



World rice exports

Milled rice equivalent — including Mainland China, North Korea and North Vietnam based on returns from importing countries



ed to have reached an all-time high of $165 million, due to higher prices on the world market, compared with $154 million in 1966.

The supply and price of rice in late 1968/early 1969 will be determined by the size of the 1968 paddy crop. Acreage allotment in the United States, now the world's biggest exporter, has been increased by 20% and Australian production is to be maintained at the previous year's level. Given normal weather, rice output in Asia may be expected to resume the long-term upward trend, especially in view of new varieties and higher prices.

TEA

India and Ceylon, the world's two largest tea exporters, have agreed on a common approach to marketing. The two countries will set up a corporation, or consortium, through which they will collaborate in blending, packaging and bagging tea for overseas markets.

The agreement is the outcome of a series of meetings which the two countries have held since September 1967. Promotion and advertising will be stepped up and a fixed percentage of export earnings will be allocated for this purpose. The two are also in favor of continuing the work of the Tea Council in the United Kingdom and of promoting tea through Tea Councils in other countries.

Ceylon and India, together, produced nearly 600,000 metric tons in 1965, according to FAO statistics, more than half the world total of 1,160,000 tons. The two countries exported 430,200 metric tons in the same year out of total world export tonnage of 613,000 metric tons.

Total world tea production by 1975, outside the centrally-planned economies, has been estimated at 1.32 million tons, while demand has been estimated within the range of 1.14 to 1.20 million tons. Thus, while production will rise at the rate of over 3% per year, demand is only expected to rise by a little more than 2% per year. This gap may be reduced by the proposed new methods of marketing and tea promotion.

UNCTAD

Various resolutions were passed at UNCTAD 2 which helped the cause of development, over and above the general agreement on 1% of the gross national product (GNP) being a reasonable aid target.

Some progress was made on such aspects as: preferential tariff arrangements; shipping, insurance and tourism; and regional economic integration. Agreement was also reached on a program of negotiations and consultations involving 19 specific commodities, including:

...**Cocoa:** reconvening of negotiating conference aimed at an international cocoa agreement.

...**Sugar:** negotiating conference to lead to an international sugar agreement.

...**Oilseeds, oils and fats:** FAO and UNCTAD secretariats invited to complete a study of possible solutions to trade problems (by end of October 1968) to be followed by the establishment of an intergovernmental consultative committee if considered necessary.

...**Rubber:** International Rubber Study Group and its consultative committee on natural and synthetic rubber producers, together with the UNCTAD permanent group on synthetics, to hasten implementation of measures recommended by an UNCTAD exploratory meeting on rubber in December 1967.

Sisal, henequen and abaca: informal arrangements — conducted under the auspices of FAO's study group on hard fibers — to be evaluated and further steps, including the possibility of a formal agreement, to be considered.

...**Jute:** informal arrangement — under the auspices of FAO's study group on jute, kenaf and allied fibers — to be continued and strengthened. Possibility of a buffer stock scheme to be explored.

...**Bananas, citrus fruit, tea, wine and cotton:** various interested bodies — FAO's study group on bananas, study group on citrus fruit, consultation on tea, and ad hoc meeting on wine, as well as the International Cotton Advisory Committee — were asked to transmit their conclusions and suggestions for remedial measures to the UNCTAD committee on commodities with a view to arranging intergovernmental consultations.

...**Pepper, tobacco and shellac:** commodities studies were called for these items, for which no study groups exist, to be followed, if necessary, by appropriate intergovernmental consultations.

WINE

The first major step toward setting up a continuing international forum on industries based on the grape was taken in late June by a 26-nation ad hoc consultation on wine and vine products. It was recommended that FAO establish a formal study group to deal with problems besetting international trade in vine, dried vine fruit and fresh table grapes.

The proposal will be considered by FAO's Committee on Commodity Problems in September. If approved, it would be charged with providing " a forum for consultation and studies on all aspects" of these products, including the economic aspects of production and conversion of vineyards to more remunerative crops.

Among the matters the group would consider would be prices, trade barriers, distribution systems, ways of improving wine quality and possibilities of increasing trade and consumption. One important investigation would be on the problems of wine stocks, particularly in relation to Algeria, Morocco and Tunisia; at present Algeria alone has a surplus of some 14 million hectoliters. The proposed group would also analyze the situation for grape juice, dried vine fruit and table grapes.

In reviewing the marketing prospects for dried vine fruits, delegates noted that the best prospects for trade exports in the future for raisins and currants, which also suffer from surplus stocks, lay in the Soviet Union, eastern Europe and Japan.

COPRA

World copra production fell in 1967 to 3.2 million tons, 250,000 tons below the 1966 level. This was mostly due to a sharp drop in Philippine yields resulting from insufficient rainfall during 1966. Indonesian production improved marginally, but there were declines in Ceylon and in New Guinea.

The 1967 shortage resulted in a sharp increase in the price of coconut oil in western Europe, the United States and Japan which, together, account for about 80% of world imports of copra and coconut oil.

Prospects for 1968 point to another year of reduced output, again on account of the Philippines, due to insufficient rainfall and typhoon damage. The long-term outlook is also dependent upon the Philippines. This country has, however, proved to be the most dynamic among coconut-producing countries and acreage has increased some 62% from 1957-65. Philippine copra production should soon begin to show a sharp upward trend and by the late 1970s should top 2 million tons compared with the present level of 1.5 million tons.

Development means willingness to participate

A man who has spent his life directing bilateral and multilateral aid programs is interviewed on the motivation and philosophy of development

by ***PAUL-MARC HENRI***

Q. What do you think of the effectiveness of development aid?

I recently read in a review an extract from one of the debates in the United States Congress. One of the questions asked was: "How much has the United States contributed to international aid?" The reply stated that U.S. aid programs, starting in 1947 and including the Import-Export Bank and the Marshall Plan, had given away the staggering total of $90,400 million, not counting military aid. The countries which had received most included the United Kingdom ($7,700 million) and France ($5,100 million). The developing countries on the list ranged from Upper Volta ($9 million) to The Gambia ($1 million).

A more specific and searching question might be: "What has been achieved by these vast sums?" I would reply that money spent by an international program, like the United Nations Development Progam (UNDP), is not simply an investment yielding a measurable percentage of profit. It is, first and foremost, the expression of a willingness to participate.

I feel that this is important. It is not just a matter of political interest. Even though, now and then, there may be minor lapses of principle, the amounts spent are never intended to be part of a political program for the benefit of any one country. By definition, we are obliged to work in all countries throughout the world and we do, except for Mainland China. Ours is an international program reflecting the will of the member countries to contribute to their common development. It is not an investment to obtain a specific and immediate interest.

There is a permanent dichotomy in the philosophy of participation in the United Nations: on the one hand, various criteria based on the 'most effective use'; on the other, those criteria which are not really economic but which reflect a general desire 'to do something.'

Is 'doing something' an excuse for what we have failed to do? — a sop to a guilty conscience over the huge military budgets that burden the world economy? — the price of fear? There has been some talk of transferring money spent on armaments to development — it is, in fact, an official tenet of the United Nations — but we live in a dualistic world and the idea has little chance of acceptance. I be-

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Paul-Marc Henri, *formerly secretary of the Commission for Technical Cooperation in Africa South of the Sahara, is assistant administrator and associate director of UNDP's Bureau of Operations and Programming*

lieve that what we are doing cannot be analyzed, cannot be broken down into politically, economically or philosophically-motivated ends. But, at least, we act.

The development of international programs is astounding compared with the prewar situation. It is a major historical phenomenon. Even if the amounts involved are relatively insignificant they are, nevertheless, enormous compared to what was negotiated before the war.

Q. What is the relative value of bilateral and of multilateral programs?

I was administering bilateral aid to countries outside the French community before I worked with a multilateral program. At that time, I had certain views on the problem; more recently, seeing it from a multilateral standpoint, I have different ideas. In any case, I think the question is somewhat irrelevant.

Bilateral and multilateral aid

First, let us consider the question of effectiveness. Three years ago in Washington, Walt Rostow said to me: "When you can prove to me that aid in multilateral form is more effective than bilateral aid, I'll recommend in the right quarters that the contribution to the United Nations be increased." But that's not the point. Our experience in the field is not enclosed in a vacuum. Bilateral and multilateral aid are often motivated differently but both deal with a living environment: they are constantly interacting. Effectiveness, in the true sense of the word, is not necessarily the best criterion and there is no effectiveness in the commercial sense.

Investment and pre-investment

We try, for instance, to establish a connection between the proportion of costs for investment and pre-investment. We work it out this way: we take the existing investment and then, counting backward, determine the pre-investment necessary for undertaking the investment. We decided, empirically, that we would give 1 to 2% to pre-investment, and, therefore, 98% to the investment itself. I find this form of calculation fascinating but, of course, it's completely wrong since the decision to invest has already been made in advance and the pre-investment is dragged in afterwards.

True, when the Special Fund was created our experience tended to prove, and may still prove, that investments were too often made without pre-investment and that, as a result, they were often faulty or unsuitable. But to also assume that we need only undertake pre-investment studies and that investment will automatically follow is nonsense.

Investment depends on many more factors than a mere pre-investment study. Insofar as such a study is successful and results in implementation, it is already part of a complete and integrated decision-making procedure. We don't automatically touch off a trigger mechanism by saying: "Here's a study — lend me 10 million dollars." It is true that we are more likely to get 10 million dollars by submitting a good study than none at all; yet there have been cases where we advised against investment and, three months later, the government borrowed 40 million dollars, although naturally under unfavorable conditions. I find it difficult to judge the whole pattern of effectiveness.

Releasing potential energy

What is important, however, is the release of potential energy resulting from technical assistance or pre-investment efforts. It is significant that there is now a sort of major interest in development all over the world, a keen awareness of the need for development and, often, of its pitfalls.

This is mostly due to large-scale technical assistance operations. When I say large-scale I am not exaggerating: they are not to be compared with those begun 15 or 20 years ago. We are only now reaping the fruits of a new realism on the part of governments over the possibilities of investment and of mobilizing both domestic and foreign resources.

Only now have they acquired a keener awareness of the time and space factors, of the negative factors of development and the necessary counter measures. This new awareness is due, to a large extent, to the patient, hidden educational effects of international technical assistance.

The dialectic of bilateral aid

Frequently, bilateral donors become impatient with inadequacies or outright failures of their aid programs cannot resist preaching to the recipient country: "I told you so. You shouldn't have done this or that... you should have organized your land reform..." Such constant lecturing, superiors talking to inferiors, can be extremely irritating.

At the opposite extreme, though stemming from the same attitude, but for demogic reasons, there has been a readiness to dispense with conditions and to give whatever is asked for, which is equally reprehensible. I think that a truly reciprocal relationship — the check and countercheck afforded by commissions and sub-commissions — with all the necessary apparatus of democracy, which seems on the surface to be costly in time and money, bring us closer to an objective evaluation of reality.

Q. To what extent can development be controlled?

The World Bank is rather rigorous in its decision-making process. However, by analyzing the various limitations to development and by stressing the problems of reimbursement it avoids over-optimistic predictions.

The attraction and danger of loans

It has introduced a healthy note of realism to the preparation and conditions for loans compared to the way loans were handled even in Europe, between the two world wars, above all by Germany. There has been a veritable loan craze and certain developing countries have not been exempt from it. Yet the craze was restrained by the constant, sometimes stark, realism of the World Bank. I feel if there were any honors list for realism the Bank should receive first prize.

The realism of the World Bank

By now, thanks to detailed analysis and a steady improvement in statistical methodology and in practical, technical means of assessing natural resources, we have acquired a considerable knowledge of economic phenomena.

We are much better qualified to judge the physical and objective limitations to development than we used to be. We now know practically all the negative factors and forces opposing development: we are thoroughly acquainted with the problems of population, soil erosion, water and air pollution and the misuse of mineral resources. Still, some aspects continue to elude us — usually those leading to a positive rather than a negative interpretation. We can only guess at these optimistic aspects.

There are the still-undiscovered resources: fifteen years ago no one dreamed that Libya possessed oil, for instance. Technology is undoubtedly opening up new channels to needed resources. Ours is truly a time of transition: we can imagine anything and everything where the future is concerned.

We can say that the world is heading for disaster because of the sheer inadequacy of resources in proportion to population and our inability to organize a rescue operation, yet we must also agree with Paul Hoffman that there are exceptional opportunities to recoup our situation, provided we act with sufficient tact and skill keeping in mind the need for an overall approach (though rigid measures will, *ipso facto*, engender counter-forces).

A disastrous or an exceptional future?

The leaders in all countries are in exactly the same position. We can, from time to time, find every one of them expressing completely pessimistic views.

It must be admitted that the present administration of public affairs and development does not work, or works badly. In 1960 many developing countries, following the development models, believed, in good faith, that it was only necessary to set targets, make some approximate assessments of their local resources, estimate the difference and say: "We have this much, you must give us that much." Nigeria's plan, and those of many other countries, were established this way. But every year the demands on foreign aid grew larger in relation to supply. The developing countries cried: "You promised this... you haven't done it... we are not responsible for our failures."

A poor understanding of objectives

This was a painful period with many crises. Undoubtedly Indonesia's and Nigeria's tragedy, and others I could mention, were the result of this situation: their aims were extremely ambitious and now they can no longer even function properly.

Q. What are the motivations of development?

We must distinguish among the different types of projects we support. Some are optimistic projects, opening up new perspectives and leading to new solutions. Others are projects applied to systems which are already virtually wiped out, where the factors opposing development, the decay of the society, threaten to outweigh the development factors. The equilibrium is unstable and international action can only

Some projects win, others lose

help to balance it: the absence or inappropriateness of aid may lead to a downward spiral and complete collapse.

I don't know which will prevail, the positive or the negative forces. What I do know is that, in the final analysis, the force which drives development is provided by the will. By will I mean the firm intention, from an international point of view, not to be paralyzed by the debilitating powers of bureaucracy. They are considerable and are inherent in any organization, whether civil, political, military or religious. There are also forces of scepticism and destruction within governments themselves and the impatience of the younger generations who are ready to demolish the established organizations which no longer work. Nothing has yet been prepared to tackle these enormous, unresolved problems. In this respect ours is a dangerous time, but there have been plenty of ages like it.

Q. In what form should aid be given?

Development must constantly be adapted

Development implies, by definition, an inter-disciplinary approach. It does not concern merely inanimate objects but living beings as well. As everyone knows, in any plan, even a physical one, you always have problems of feedback, of correction and adjustment. We may also say that, by definition, any system that works is one where the feedback is sufficient to allow the mechanism to adapt itself to new tasks.

When there is no feedback the result is entropy and, sooner or later, the system stops functioning. That is, if we fail to constantly correct our operations (and by 'we' I mean governments as well as international organizations) we are in constant danger of finding ourselves in a condition of statis, or static balance, and, often, even profound deterioration. In the case of the multi-disciplinary approach, I believe we must submit to an imperative need: we must apply system analysis to a given situation while remaining fully aware of the inherent limitations.

We are dealing with the fate of millions of people, free units possessed of an independence of thought and action. They behave even less predictably than meteorological phenomena. We cannot continuously feed all these variables into a computer. There are limits to our analysis but, nevertheless, we must define an objective. An engineer at the California Institute of Technology, for instance, recently suggested applying system analysis to the town plan for New York. He proposed the following study: first construct an ideal model of the city as you would like it; compare it with the present plan, and then, sector by sector, analyze the differences between the real city and the model. Finally, assuming the model is accepted as the ultimate goal, rework the final plan through a series of sector studies. Naturally this is a hypothetical plan, but the theory behind it is sound.

3.5 thousand million people

We know what we want: to enable 3.5 thousand million people in a dynamic state of population growth to co-exist within a limited area.

Human society is a closed system

The world is a closed system, at least at the moment. In a closed system, by definition, all negative and positive actions and aspects must cancel each other out. Consequently, by examining our system as a whole, global in the true sense of the word, we can readjust the national plans, which are organic units or building blocks of decision, themselves based on other blocks with even wider objectives.

Q. How should development be applied to a constantly changing world?

We can reasonably assume that there will be a worldwide meteorological network in ten years — it is being organized at the present time. We are already relating national projects to international objectives and, logically, in 10 or 15 years a practically complete system will exist on a worldwide scale, with all the necessary feedbacks and corrective mechanisms. We can predict that such a system will also be created for the world's air communications. In these sectors the application of the principle does not encounter much resistance.

National projects, international objectives

On the other hand, matters are not going at all well so far as the organization of the population's means of subsistence is concerned. This question is complicated by problems of trade, foreign exchange, currencies and economic disparities. Within the old system, one lives within a structure of co-existence rather than inter-penetration. Apart from the stark and immediate problems of subsistence, there are educational and sociological questions — in short, progress has broken down.

Everywhere we come up against an earlier system, so solidly rooted that we find not only at the regional level but even at the national level. Here too, we are confronted by an accumulation of faults, or if not strictly speaking faults, of the overwhelming dominance of an archaic system.

The transition from co-existence to inter-penetration

When western Europe colonized America it was a system testing its own logic on virgin soil. We have now reached a remarkable point in human history when it has become impossible for co-existing systems to ignore each other. We are forced to set up a system of inter-penetration. The difficulty is that most of the decisions concerning biological, ecological and other factors lie in the national sphere and will continue to do so. I do not, and absolutely cannot, see any international authority issuing binding orders in these fields.

The force of inertia of the former systems

It will become necessary to compromise between the will of national units and the needs of the international system. Viewed from this standpoint, the action of the international organizations becomes meaningful. What we call the Indicative World Plan or the World Employment Plan are simply attempts to define a common objective for the system.

Q. Can national initiatives and aspirations be reconciled with a world strategy?

I believe that the U.N. Development Programme is moving in this direction. We have drawn the attention of governments to the fact that whatever decisions they make at the national level have an international impact. They set off forces and counter forces, correcting and readjusting forces which, unless guided in the right direction, have a negative effect.

International trade is a classic example. I once asked a mathematician: " If you look at the payments balances of all the world's countries, there are virtually no creditor nations. The deficits are larger than the credits. How do you explain this in a closed world system? " The answer was that the total sum should be zero but, in fact, it is not because the vectors do not always move in the same direction. We have a system of dynamic imbalance.

The example of world trade

It can be explained like this: while the absolute volume of foreign trade is increasing, the participation of the underdeveloped countries is decreasing. The more developed part of the system is experiencing phenomena of over-production, while the less developed part is experiencing under-production and under-consumption. This is not a new phenomenon but it is now taking place in a far more integrated world. Consequently, the mutual shocks and repercussions are much more immediate. The possibilities of correction are, however, also far more developed.

The imbalances are more obvious today

It is true that United Nations participation in aid to development accounts for only 10% of the total amount being spent for this purpose. Roughly speaking, out of the $7,000 million annually going to the developing countries — as an absolute figure, not counting the reimbursement of loans — the international system, that is the World Bank Group and the UNDP, account for only $1,000 million. It must be mentioned, however, that most of this flow of capital is artificial: consisting mainly of compensations in order to avoid a worsening of the situation.

For instance, if a certain country gives $100 million (which, moreover, it does not have itself but borrows elsewhere) to provide goods or equipment, it knows very well that it will not be reimbursed within, say, twelve years, but it believes that new balances will be created in that time which will enable it to grant a new loan. It is quite natural, and I am not criticizing this way of doing things. I am merely saying that it is a difficult way and accumulates apparent deficits.

A flood of loans

Q. Is there a world development policy?

Our situation is not altogether clear and the decisions remain wholly artificial. By definition, a decision is artificial, otherwise we would be living in Adam Smith's universe. Therefore, we live in a universe of artificial decisions, a discretionary world where, in most cases, exchanges are maintained by specific kinds of discretion. The whole problem is to decide whether we should accelerate in our present direction toward vaster, more distant horizons. Should we go further still, or stop or change direction? Should we stick to palliatives, which is what we are doing all the time now, through banking and credit channels, bilateral agreements in barter or other forms? Or do we intend to apply realistic remedies for instance,

The whole system of compensations rests on an a priori *assumption*

to create a large-scale increase in the developing countries' purchasing power?

Whatever we undertake must fit into one overall plan. In short, if we are willing to help maintain these artificial and discretionary movements and increase them, we will be contributing to development. It doesn't matter that, taken separately, project by project, the input-output ratio is imperfect. What does matter is the whole, the overall picture, and not the particular action. This does not mean that we shouldn't employ rigorous methods of analysis. We need a certain discipline for every move we make.

However, the point is not in any one action, but in the whole. If we contribute to these different currents, we are participating in development. If, on the other hand, we create opposing currents, we are against it.

Q. What role can private capital play in this mechanism?

What is meant by private capital

Private capital already plays a sizeable part which is not often correctly analyzed. We interpret private capital as movements of international capital but there are also substantial movements of national, or marginally international, private capital as in Brazil and India.

It must be clearly understood that when we speak of private capital we mean all of it, not just international private capital, such as that of X, a large company which is interested in establishing a subsidiary in another country. The real criterion is the role of private capital in each country. I feel that in most countries the role of private capital should be increased. However, the supply of private capital itself depends on government decisions. Take the United States at present, for example: the supply of private capital has been reduced by a policy of taxation and distribution of costs and profits resulting from other external factors. We might even say that as long as private capital continues to operate within these limits it will not have the same opportunities for expansion as it has had in recent years. In the same way, in a country like Brazil, the relation between government and private capital is unstable and uncertain, with inflation also playing a large role as a factor of adjustment.

National policies and private capital

The advent of a mixed company

In western Europe, too, there are countries where one can predict with certainty that the future economy will be mixed, that is, based on both state and private capital: this has already happened in many places.

We are moving toward the kind of world where the relations between the state and the private sectors will be extremely numerous and complex. Our analysis of any future private capital movements as part of the movement of official international aid will have to take into account the mixed character of the operation from the outset.

Private capital is often criticized. We say to governments: "What you are giving is not aid — it is an encouragement to your exporters and bankers." In that sense even aid provided by governments is private. On the other hand, certain governments employ private channels in order to act discreetly and avoid political commitments.

Private initiative is irreplaceable

What do we mean then when we say that, in a period of transition, multilateral aid offers more advantages than bilateral aid? If we mean that private decisions (as distinct from the general political position) must continue to play a role in development, I would agree because this is still one of the best mechanisms for adjusting to circumstances as we find them. It is not a perfect mechanism. It needs improvement but, so far, private initiative is still, unquestionably, the most flexible and effective means of adapting to the changing needs of consumption. It is the best solution for handling consumer goods and even for certain capital goods. I believe everyone agrees with this. Even in some socialist countries it is considered that certain economic sectors should be left to individual initiative.

The dialectic of private initiative and state control

Here too we can apply the system analysis concept. It would be visionary to suppose that the adjustments resulting from individual decisions of a private nature would be enough to run the world. The disparities and imbalances are too great, and the adaptive mechanisms of private initiative tend to increase them. But if we try, in one way or another, to compensate for them by government decisions, we then have a situation of near equilibrium and private initiative again comes into its own.

India—famine: two words which touch off an association of ideas. Will they always do so? CERES has tried to find out.

The last harvest, with its record crop of 110 million tons of grain, seems to refute the pessimistic past. It's the favorable monsoon that's responsible, say the fatalists.

Of course, but man plays his part, too: those who produce the grain; who plan agricultural policy; who design and construct irrigation networks; and who tackle the difficult problems of establishing a market economy.

The articles in our India issue deal with these four aspects of change; and with others which are no less important. The editors make no claim to have exhaustively covered all the factors involved. Their aim is to draw attention to what is in the air and on the move. ▶

Enough wheat for export?

An important choice has been made: government spending is being channeled into selected areas as the quickest way of increasing production

by ***CLAUDE MOISY***

Today, Shri Jagjivan Ram, India's Minister of Agriculture and Supply, radiates confidence and satisfaction. This year, the official estimate of his country's grain crop is 95 million tons, 6 million more than the record set three years ago.

But, sometimes, good news carries its own dangers. Coming after two years of shortage due to droughts in the main production regions, this unprecedented success has prematurely convinced many people that, after twenty years of stalemate, India has finally solved its agricultural problems.

Optimism is at a new high. Speaking recently before a gathering of farmers in a village near Delhi, Mr. Jagjivan Ram unhesitatingly declared that the worldwide famine, which the experts predict will threaten the world by 1975, will not affect India. "Long before that we shall certainly produce enough to feed ourselves and, if all goes well, we shall have a wheat surplus for export."

This is the theme that the Ministry of Agriculture's information services stress and vary with mounting enthusiasm in articles on what they now call "the Green Revolution."

For the time being, the rigorous *Economic Survey*, submitted by the government every year along with the budget, is more reserved: "The large increase in grain production for 1967-68 is chiefly the result of favorable weather conditions as compared to the two preceding years. However, a considerable part of the increase can be attributed to the governmental measures taken to raise the production capacity of Indian agriculture... Assuming the crop season proves normal, India will have passed the critical stage... and it will be possible to rationalize the food economy and reduce the recourse to imports."

Claude Moisy is bureau chief with Agence France-Presse in New Delhi.

New agricultural strategy

What is the new agricultural development strategy? How was it arrived at? What are its chances for success and its hazards? These are some of the questions which have recently assumed enormous significance for Indian public opinion.

The Agricultural Intensive Program (AIP) is based on a fact which may run counter to many westerners' preconceived ideas, but which the experts do not challenge: if Indian agriculture is stagnant it is not because the 350 million Indians who work on the land are lazy or backward, but because they lack the means to work more effectively.

The new strategy, therefore, consists of making available the technical means for achieving higher productivity to the greatest possible number of farmers, by providing them with irrigation, high-yield seed, chemical fertilizer and pesticides.

Until now — that is, until the severe food shortages of the past two years — agriculture had never seriously received priority in India's development plans. In a country where over 70% of the population depends exclusively on farming the land, the Department of Agriculture's allocations, up to the end of the third five-year plan (1965-66), never accounted for more than 9% of equipment expenditures whereas industrial investments often came to over 20%. Irrigation outlays fell from 9.26% (1960) to 6.5% (1966).

In fact, in the period immediately following independence, agriculture was unfashionable. Nehru's India surrendered to the spell of heavy industry, like many other former colonized countries once they had become masters of their own fate. This situation was soon further complicated by the problem of bilateral foreign aid which always goes more readily to prestige projects. As a result, India now has a steel industry with an overcapacity of about 50% while it must still import two-thirds of its fertilizer.

There is another factor which works against the development of agricultural production. An admirable desire for social justice, after centuries of feudal exploitation, gave rise to the oversimplified idea that agricultural progress required each Indian farmer to possess his own small plot of land. We have witnessed a proliferation of family farms too small

) make ends meet, even if the necessary nancial and technical means could, by ome miracle, have been given them.

Moreover, we have seen private capital, hat of the former large landowners and ocal dignitaries, turn away from agricul- ural activities just at the time when state funds were being directed toward other priorities. The palliative of agricultural credit cooperatives, which was timidly introduced, only produced disappointing results. In a system which, for political reasons, operates without obligations or sanctions, too large a share of credit, extended by favoritism, was sidetracked into non-agricultural expenses: purchases of consumer goods, costs of weddings or religious ceremonies.

It must be admitted that, throughout this period, the small financial and technical means made available to agriculture were not put to optimum use either. A counter to the practices pursued for fifteen years. Putting efficacy first, it concentrated the development factors (credit, fertilizers, selected seed, pesticides) on those few already-favored agricultural areas which were best qualified to obtain results from them.

Still dependent on exports

" Doesn't the adoption of the package program as the basis of the government's agricultural policy mean the sanctioning of inequalities existing between producer regions? " asked critics of the system.

Certainly the controversy that was to break out on this question in the Indian government and ruling circles in 1964-65 did not stem from political motives alone. The members of the Plan Commission, inclined to dogmatism, were thoroughly convinced that a balance in the rate of economic development had to be maintained between the various levels of society. They felt that concentrating the means of improved agricultural production in a few privileged areas might offer short-term advantages, but that it could involve infinitely greater danger to the country's social balance in the long run.

The debate would still be going on were it not for the catastrophe of the two successive drought years of 1965 and 1966. The country was literally on the brink of economic disaster. Grain output, which had attained a record 89 million tons in 1964-65, abruptly fell to 72 million tons the following year. This meant a setback of ten years. And it was all the more acute because the country, economically weakened by the September 1965 war with Pakistan and the suspension of foreign import credits that went with it, was in absolutely no position to deal, through its own resources alone, with the shortage that threatened, first Orissa, and then Bihar.

It was a rude shock to Indian leaders to find that, after three five-year plans, agriculture was still at the mercy of the harvest and, when it failed, of United States food surpluses. This psychological factor was decisive.

The United States wheat imports — presented as exceptional and temporary measures when the first P.L. 480 agreement (deliveries payable in rupees) was signed in 1956 — had constantly increased. Such imports had risen from 2 million tons in 1957 to 4 million in 1960 and over 5 million in 1964, according to the official statistics of the Ministry of Agriculture. They reached 7 million tons in 1966 and 10 million in 1967, following the great droughts.

Everybody agreed that the situation could continue no longer, above all the Americans themselves, whose surplus stocks were becoming exhausted. In India the 'assisted' imports under the P.L. 480 were criticized more and more violently, in Parliament and the press, as they proved more and more indispensable. Not only the Socialist and Com-

YEAR	POPULATION (Millions)	GROSS PRODUCTION OF FOODSTUFFS (Million metric tons)	NET PRODUCTION OF FOODSTUFFS (Million metric tons)	IMPORTS (Million metric tons)	AVAILABILITY PER HEAD (Grams per day)
1951		55		4,8	
1956		69.2		1,4	
1961		82		3,5	
—	—	—	—	—	—
1965		89		7,45	
1966		72		10,3	
1967		75		8,7	
1968		95*		7,5*	

1968-estimated

Source: Economics Division of the Indian Ministry of Finance

An Indian opinion on P.L. 480

" Beginning in August 1956, India entered into a series of agreements with the United States providing for the import of surplus agricultural commodities, chiefly wheat, under the United States Public Law 480. . .

" A major objective of the special economic aid under P.L. 480 was to help newly developing nations meet the strains of the transitional period and enable them to stand on their own feet. . . The P.L. 480 aid was first made available to India at a time when she was beginning to feel the strains of this developmental effort on her food front. The inflationary pressures generated in the economy during the subsequent years could not have been contained with the help of domestic production alone, which had not been increasing steadily and fast enough. . .

" By themselves, these are solid achievements on the credit side. However, it is necessary to assess the role of P.L 480 in India from the point of view of long-term perspectives and policy. . . It needs to be recognized that these imports were meant to help tide over difficult periods. For India it was meant to provide the necessary ballast to her food policy over the difficult years of development. It is not an interminable flow, in the context of long-term policy. Therefore, any rise in consumption, aided by P.L. 480, which cannot in the long run be sustained by India's ability to produce at home and/or buy from abroad, would not be real and helpful. Nor can a price policy based on such a short-term approach be sustained in the long run, and be conducive to development and growth.

" Judged from this point of view, India's food policy in the context of P.L. 480 imports would appear to have been far short of the desired. . . In the first place, large additional imports have become a normal feature of the Indian food economy. . . There has been no significant effort at stock-piling; whatever stocks are there would not suffice even a year's requirement of imported grain on which the market has now become dependent for maintaining the related levels of price and consumption... Secondly, the pricing and manner of distribution has resulted in a very much larger consumption of wheat and wheat products in urban areas. A large part of this has been by middle and high income groups. . . In an economy where food supply is not plentiful, to put it mildly, the justice and propriety of subsidizing consumption of such classes is not at all clear.

" Indeed, there appears to have been no effort made to price food grains appropriately at different levels. Even the government's price policy has refused to take advantage of the differential preference of the consumers for red and white imported wheat. The large and assured supplies under P.L. 480 appear to have created almost complete dependence on these, as can be seen from the fact that some efforts in regard to internal procurement, price regulation, etc., were made in the case of rice, while none of these has been a serious feature of the wheat policy.

" In regard to measures other than prices, there is evidence of a lack of sense of urgency. In general the needed structural and technological changes in agriculture, and the larger supply of new inputs have not been undertaken at an urgent pace. Specifically in food grains, the relatively greater attention to rice than to wheat is an indication that large P.L. 480 supplies have created a sense of relaxation. In all this, the sense of urgency, spurred by the realization that P.L. 480 is not an unending stream, is not evident.

" It suggests, therefore, that India cannot afford to be wasteful in the use of P.L. 480 resources, nor can it relax on its oars, thinking the P.L. 480 breeze will blow for ever. The imports under P.L. 480 can play their proper role only in the context of a more realistic price policy and a more judicious use of these resources on the one hand, and a sincere and much greater effort at increased production on the other."

Impact of Assistance under P.L. 480 on Indian Economy, by Nilakanth Rath and V.S. Patvardhan.

Asia Publishing House, London (for Gokhale Institute of Politics and Economics, Poona), 1968, 202 p., 45s.

* * *

Cumulative value of United States agricultural exports to India (government and commercial for the years 1954-55 to 1965-66 under P.L. 480: $3,171.4 million.
The Food Aid Program 1966 - Annual Report on P.L. 480.

munist leftwing, but those within the governing National Congress Party itself, denounced the heaviy dependent position in which this regular recourse to surpluses placed India vis-à-vis the United States. At the same time, the orthodox financiers of all sectors of opinion were uneasy at the inflationary effects of a system whereby the local currency product of the sale of grain imported on long-term loans extended by the United States was coming to occupy an increasingly large place in the national budget.

It would be pointless to deny that the United States used food aid to influence its relations with New Delhi. But it did so mainly to convince Mrs. Indira Gandhi's government that it must change its agricultural policy: to give agriculture higher priority in the national budget as compared to industry; to produce more chemical fertilizer as rapidly as possible; and to use it on a massive scale where this could significantly increase production immediately.

Paradoxically, these American pressures, which were immediately denounced by the left, were in line with the views of those who wished to free India from United States influence. In that critical hour, as pragmatism became the chief hallmark of the policy of Jawaharlal Nehru's heir, the then Minister of Agriculture, Mr. Chidanbaram Subramaniam, finally overcame the reluctance of the Plan Commission.

Aid to selected areas

In the middle of 1966 the go-ahead signal as given the new agricultural strategy which Mr. Subramaniam, swept out of office by the D.M.K. Tamil regionalist party's election success in his own state of Madras, would soon no longer be there to apply.

Agriculture's share in the 1966-67 budget rose to 12.1%, as a first result, reaching 13.2% in that of 1967-68. If the credit appropriated for irrigation and community development is included, one fifth of the plan's resources will now be devoted to agriculture and related sectors.

The Agricultural Intensive Program, broadly inspired by the American package program, has been gradually established. Its objectives are ambitious. It has set a production target of 125 million tons of grain for 1971, so that India may then be able to feed itself.

To meet this target, 114 selected districts, covering about 37 million acres (out of a cultivated area of 227 million acres), are to be given high-yield seed (Taichung Native 1, Tainan 3, ADT 27 for rice; Sonora 63, Sonora 64 and Lerma Rojo for wheat), and a concentration of almost 2 million tons of chemical fertilizer. In addition, 210 million acres, or almost all the cultivated land, is to be progressively treated to combat the insects and diseases which habitually destroy 20% of the standing crop.

How far has the program gone? The government itself admits in the 1967-68 *Economic Survey* that the beginning has been slower than expected. In the first year (1966-67), 6.2 million acres were to have been sown with "high-yield" seed. Actually, less than 5 million acres were sown. It is unlikely that the 15 million acres target for 1967-68 has been met — the real figure is probably somewhere between 10 and 12 million acres.

There was a similar lag in the use of fertilizers, for which the distribution methods and the consumption targets were over-ambitious in view of the supply.

Recently, Mr. Jagjivan Ram's Ministry organized a seminar in New Delhi, assembling outstanding personalities in the field of agriculture, to take stock of the application of the new agricultural strategy. The prevailing trend was optimistic in the light of the early results, but more cautious regarding the outlook for the future. The discussions between those working in the field and the bureaucrats brought out some weaknesses in the program's execution.

The program's progress was slowed down, they all admitted, by the insufficient number or the incompetence of the intermediaries between the agricultural technician in the laboratory and the farmer in the field. Too often, the distribution of the high-yield seed, fertilizers and pesticides still suffers from the slowness of rural bureaucracy, petty local quarrels and the lack of qualified agricultural extension agents.

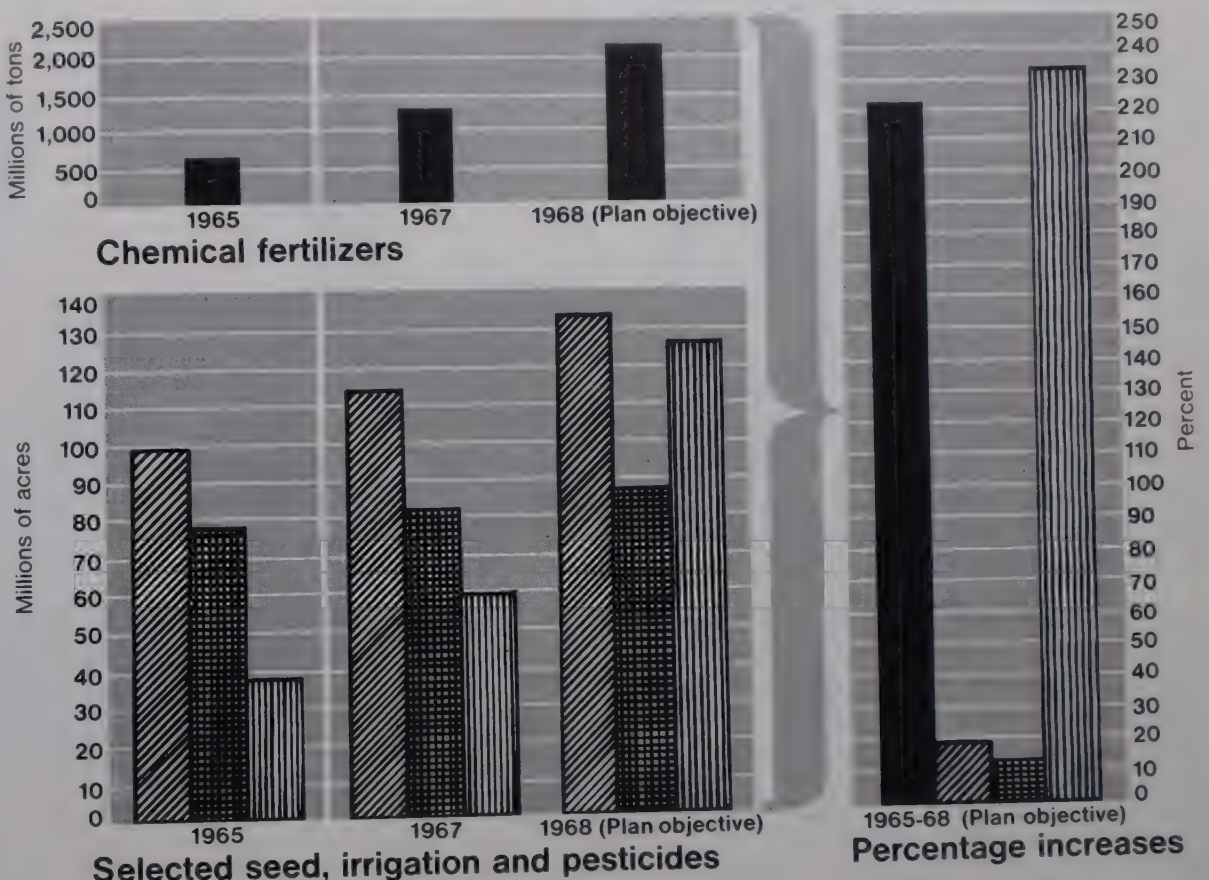
An organizer from Uttar Pradesh pointed out that in many villages theoretically covered by the program, the high-yield seed had not arrived in time (before 15 June for the summer sowing and 15 October for the winter one), and the farmers had to use the traditional seed which, obviously, does not respond as well to fertilizer.

The repercussions of the political instability prevailing in many states in northern India (which the Minister of Agriculture is inclined to minimize) were highlighted by the director of agriculture in West Bengal. The frequent battles that broke out between landlords and landless peasants at the time of the rice harvest last November and December, he pointed out, did nothing to create a favorable atmosphere for the normal development of the program.

estimate that the 95 million ton grain crop expected this year exceeds the present stocking and maintenance facilities. This means that the rate of losses after the harvest, officially assessed at 7% in the preceding years, may be even higher this year.

But the most serious weak point in the new agricultural policy is the inadequate output of chemical fertilizers. This aspect of India's agricultural problem is all the more significant because

Dramatic rise in agricultural inputs



Amount of chemical fertilizers (nitrogen, phosphate and potassium)

Area sown with selected seed (including new high-yielding varieties which rose as a percentage of the total area from nil in 1965 to 4% in 1967 and 16% in 1968).

Area under pesticides

Irrigated area

In general, the absence of storage facilities for fertilizer, selected seed and pesticides on a village and even village block scale still acts as a brake on the successful operation of the program. Thus, the already overloaded administrative machine must bear the heavy responsibility for getting such supplies delivered everywhere in time for their optimum utilization.

The states usually lack the stocking and transport infrastructure required for quickly speeding up the agricultural intensive program. Many experts even

it reflects most clearly the political reservations and considerations which, too often, hamper the best of economic intentions.

Although the sacred cow plays practically no part at this stage of agricultural development, nevertheless, even today, the Indian farmer lives in the "cow-dung" age. It is curious to note, in passing, that the rightwing traditionalist Hindu party, the Jana Sangh, unquestionably one of the rising forces on the Indian political scene, has openly spoken out in

its electoral program against the use of chemical fertilizers and in favor of natural manures.

When India became independent in 1947, the use of chemical fertilizers was virtually unknown. Even by 1960 it had reached the trifling figure of about 200,000 tons. We need look no further to explain why the yield per hectare in India has risen only 20% in 15 years.

Dangers of priority

There have been substantial efforts in both the state and private sectors to increase domestic output of chemical fertilizers so that the success of the new agricultural strategy need not depend on an excessive volume of imports, which would be ruinous to the scarce exchange reserves. But, at present, output falls short of the estimates. In 1967, India produced only 400,000 tons of fertilizer despite a plant capacity of about 700,000 tons. Nearly 1 million tons have had to be imported to meet the rise in consumption required by the intensive program.

Theoretically, various projects now in the planning or execution stage should triple production by 1971. It would be more reasonable to assume that the output will be doubled at best. The recourse to imports will continue since the program foresees that, by that time, India's total consumption should come to 3.5 million tons.

It is constantly observed that one of the obstacles holding back the execution of projects necessarily involving private foreign investment (mainly American) is the Indian government's reluctance to allow foreign firms too much freedom, either in the conception or management of fertilizer plants. Conflicting views, within the government itself, on the advisability of authorizing U.S. companies to import liquid ammonia from the Persian Gulf for fertilizer production, has already delayed several large projects.

Everyone recognizes that, in two or three years, local naphtha resources will no longer suffice to meet both the demand for oil products and those of the expanding fertilizer industry. But an instinctive mistrust, combined with a fear of being accused of selling out a key sector of the nation's economy to foreign interests, frequently leads the government to refuse the concessions requested by future investors.

Yet the long-term social danger mentioned earlier persists. In spite of his optimism over the gains made in less than two years, Mr. Jagjivan Ram realizes that the program may run into serious obstacles unless the spirit and concept are modified.

In the application of the new agricultural policy, the concern with efficiency has led to priority being given to thos lands capable of getting the maximum results out of the concentration of additional technical equipment. These are usually the largest farms which already have the advantages of operational irrigation systems and adequate financial resources.

Should the government, in its attempt to gain all chances of success, pursue this type of selection for a few more years, the gap between the large agricultural enterprises of the most productive regions, on the one hand, and the small family farms of the underprivileged ones, on the other, will automatically grow wider. The same disparity threatens to arise even within a single district where the smaller holdings, for lack of the necessary financial means, will continue to be left out of the intensive development program.

The Minister of Agriculture proposes to give fresh impetus to the cooperatives to forestall this danger. But, because of the bad reputation of the agricultural credit cooperatives, the efforts already made by the government in past years to convince the commercial banks to devote part of their loans to these agencies have had little success. Therefore, the national budget alone — which already has a large deficit — would have to undertake the financial effort needed for expansion of the agricultural program.

The government has no choice. The chief danger of the course to which it is now committed is that, even with a crop of 95 or 100 million tons, the risk of famine pockets in the regions left out of the program cannot be excluded. Indeed, during the two drought years it was amply demonstrated that the shortcomings in the nationwide grain marketing and distribution system left the regions where the shortage was worst, destitute, even in the immediate vicinity of surplus areas.

If the green revolution is to succeed, more modern methods will have to gain acceptance

Such a situation might also become a grave threat to the social and political balance of India's rural areas. So far, their comparative loyalty to the Congress Party has kept them as an element of stability in the country's political life. The pro-Chinese Communists have already been able to exploit the frustration of the most neglected backward tribes to provoke minor peasant uprisings, small-scale "Jacqueries," in West Bengal, Orissa, Bihar and Andhra Pradesh, during the past year.

An agricultural development policy that would continue to neglect the "unprofitable" farms (that is, over half the rural population) could undoubtedly increase production to 120 or 125 million tons in 1971. But this "Green Revolution" must not be allowed to touch off another, different one.

Essential facts on India

India forms a natural subcontinent, flanked by the Arabian Sea and the Bay of Bengal, with the Himalayas to the north. Its neighbors are Mainland China and Nepal to the north, Pakistan to the northwest and Burma to the east. East Pakistan lies wholly within Indian territory, except for a short frontier with Burma in the east. The Constitution of India was inaugurated on 26 January 1950 on which date India became a sovereign democratic republic.

Government: The Union of India comprises 17 states and 8 centrally-administered territories. The President is the head of the Union, exercising all executive power on the advice of ministers responsible to Parliament. He is elected by an electoral college, holds office for five years and can be re-elected. The Parliament of the Union consists of the President and two Houses: the **Rajya Sabha** (Council of States) and the **Lok Sabha** (House of the People). The first of these consists of not more than 250 members, each state's legislative quota being elected by the members of the state's legislative assembly (with 12 members nominated by the President). The second consists of not more than 525 members elected by adult franchise. The states' governmental machinery closely resembles that of the Union: all have bi-cameral legislatures except for Assam, Gujerat, Kerala, Orissa and Rajasthan (uni-cameral). At the last general elections, in February 1967, the Congress Party was returned, with Mrs. Indira Gandhi as Prime Minister.

Population: estimated at 520 million (1967) and expected to reach 560 million by 1970/71 and 630 million by 1975/76. Between 1950 and 1966 the population increased at the rate of 2.5% per annum. Population density is 42.4 per square mile/163 per square kilometer; 82% live in rural areas; 85% of the population is Hindu with Muslim, Christian, Parsee and other minority groups. India's family planning program's target is to reduce the birth rate from 41 to 25 per 1,000 within the shortest possible time. To reach this target 50% of the present 90 million couples in the reproductive age groups in India should practice contraception regularly, rising to 70 million in 1970. The third development plan (1961/62-1965/66) provided $57 million for family planning and the projected fourth plan provides $306 million (highest priority after agricultural production).

Language: The Constitution provides that the official language of the Union be Hindi. English continues as an associate language. About 180 languages (exclusive of dialects) are spoken in India.

Area and land use: total area (1964) is 784,3 million acres/326.8 million hectares (including Kashmir-Jammu and excluding Goa, Daman and Diu). Of this total, 51% is classified as arable and under permanent crops; 4% as permanent meadows and pastures; 18% as forested land; 5% as unused but potentially productive area; and 22% as built-on areas, wasteland, etc.

Climate: ranges from temperate to tropical with an average summer temperature over the plains of some 85°F/27°C. There are heavy monsoons from June to August but annual rainfall varies widely: in 1966, for instance, between 666.4 mm and 3,211.2 mm.

Economic development: the economy is predominantly agricultural. The most important products are tea, sugar, cotton, groundnuts, linseed, jute, rice and wheat. The principal minerals are coal, iron, manganese, copper and bauxite. The chief industries are cotton textiles, jute, iron and steel, sugar refining and chemicals.

Five-year plans: the first plan, inaugurated in 1951, covered a total investment (government and private) in the region of Rs. 38,500 million and concentrated chiefly on agriculture and irrigation. Under the second plan (1956/57-1960/61), total investment exceeded Rs. 70,000 million with the major emphasis on heavy industry and transport. In the third plan (1961/62-1965/66), a program of Rs. 116,000 million was envisaged with Rs. 75,000 million in the public sector. Actual public sector expenditure is estimated at Rs. 86,300 million over the plan period, deficit financing accounting for the difference between original estimates and final resources available. The emphasis during the plan continued to be on heavy industry and transport. The fourth plan (1966/67-1970/71, ran into difficulties and an interim annual plan for 1966/67 was drafted. The crop failure further worsened the position and the fourth plan has been postponed until April 1969 (and will cover the period April 1969 to March 1974). During the interim period the Planning Commission will draw up annual plans. Growth of national income in 1966/67 is estimated at 3.2% while in 1967/68 it is expected to go up by nearly 11%, due largely to a 20% rise in agricultural production.

Agricultural development: agriculture contributes almost half the national income and some 40% of export earnings. The average farm is less than 5 acres in size. About 84% of the cultivated area is sown to food grains, 10% to oilseed and the remainder to other cash crops. Main crops (1965 - in metric tons) — tea, 365,000; sugarcane, 117,606,000; cotton lint, 847,000 (official) and 997,000 (ICAC); groundnuts, 4,022,000; linseed, 503,000; jute, 805,000; paddy, 45,921,000; and wheat, 12,290,000. Animal production (1965 - in metric tons) — beef, veal, pork, mutton and lamb production from indigenous animals, 535,000; cow, goat, sheep and buffalo milk, 23,029,000. Fisheries production (1966 - in metric tons) — nominal catch (liveweight), 13,674,000; marketing fresh, 9,698,000; curing (sun dried), 1,582,000; curing (salted), 1,415,000; freezing, 262,000, and canning, 78,000. Fish imports in 1966 totaled $330,000, exports totaled $171,230,000. Exports of forest products in 1966 totaled $51,000,000.

Trade (1965): total exports amounted to $1,821.6 million; total imports to $2,990.1 million; total agricultural exports amounted to $690.9 million; total agricultural imports to $1,041.5 million. Breakdown of agricultural exports was as follows: raw sugar (272,500 metric tons - $22.9 million); tea (199,365 metric tons - $241.4 million); raw cotton, other than linters (41,220 metric tons - $22.4 million); and jute (26,046 metric tons - $6.5 million).

Foreign aid: external assistance is extremely important in financing economic development and covering India's endemic payments deficit. The Aid India Club, a consortium of countries and agencies that agreed to assist India during its second plan balance of payments difficulties, provided the bulk of the foreign exchange requirements of the third plan ($5,472 million between 1961/62 and 1965/66). Last year, the consortium agreed to a $900 million non-project aid and in May 1968 the United States gave some $225 million as its share of this commitment ($100 million to be used for essential agricultural requirements, the rest for essential industrial commodities).

Education: each state is responsible for education under the overall supervision of the Central Ministry of Education and, where possible, is both free and compulsory. In 1961, 72.2% of the population over 15 years of age were classified as illiterate while 91.3% of the population over 25 had completed less than primary education, 6.2% had completed primary and 2.5% had completed secondary and above. In 1962, an estimated 40 million children were enrolled in 367,676 schools for primary instruction; 13 million pupils were enrolled in 76,816 secondary general schools; 300,000 were enrolled in 2,769 secondary vocational schools; 150,000 in 1,150 secondary teacher training colleges and 1,207,511 in 2,633 institutions of higher education (of which 36,000 were studying in the field of agriculture). In 1962 the public expenditure on education totaled Rs. 4,365,720,000 representing 2.8% of the national income.

Labor: in 1961, the working population was estimated at 188.4 million. There were an estimated 10 million unemployed (75% in the rural areas) in 1966, expected to rise to 14 million in 1970/71.

Communications: the transport system is well developed but large areas of the country are still inaccessible by rail or modern road vehicles. Railways (36,200 miles/58,200 kilometers of track) carried 205 million metric tons of freight in 1965/66. There were 595,000 miles/958,000 kilometers of roads in 1968, 250,000 trucks and 70,000 commercial buses. Three government-owned shipping corporations and a few private companies operate a total of 1.54 million gross tons of shipping.

NOTE: Pre-June 1966, 1 rupee equaled 0.21 ¢; post-June 1966, 1 rupee equaled 13.3 ¢.

SOURCES: *Europa Yearbook, Demographic Yearbook, Unesco Yearbook, FAO Trade Yearbook, FAO Production Yearbook, FAO Yearbook of Forest Products, FAO Yearbook of Fishery Statistics, The Economist's EIU Report on India.*

An auction

Modern methods of grazing, shearing and selling wool have been introduced into Rajasthan; the nomadic shepherds are changing from a subsistence to a market economy

by JOHN WILLIAMS, photos by TOMAS SENNET

Rajasthan, in northwest India, is a semi-desert region. It seldom rains, but when it does the two-month monsoon washes away the good soil. During the other ten months of the year the sun dries the ground far below the surface and bakes the green plants. The temperature ranges from 50°C to freezing.

It seemed impossible to break this cycle of desolation five years ago when David Scott, an Australian, arrived in Rajasthan to head the FAO side of a joint India/FAO team carrying out a United Nations Development Program (UNDP) project. Their assignment was to rationalize the local wool industry. Faced with this vast area and the enormous numbers of people involved, they applied their efforts on a limited scale in the hope that their work would spread.

Scott and his team of Australian experts brought with them a miraculous grass which they were actually bringing back to India, a century and a half after it had been exported from that country: buffalo grass, which grows on even the poorest soils.

In the 19th century, when camels were imported to Australia from India, they arrived complete with their saddles. One of these saddles fell to the ground in the desert, the sun cracked the leather and the buffalo grass seeds, used as stuffing, spread over the ground and sprouted. By a frequently observed phenomenon of involution, as the grass flourished in Australia it disappeared in India. Five years ago, a new era began for the shepherds. With the new grass, the sheep grew fatter, the fleece thicker.

Sheep are shorn as much as three times a year. Always in debt, the shepherds cover their most urgent needs by selling wool to chance buyers. Interest rates constantly increase their debts and they are caught in a vicious circle which despite all their efforts, only makes them poorer, never richer

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in the desert

The nomadic shepherds, constantly traveling in search of scanty pasturage, have never received any education or training.

Experts taught them to distinguish 100 different wool qualities meeting international standards whereas, in the past, they had considered wool merely as wool and nothing else.

he experts first concentrated on the improvement of wool uality. They opened vocational training centers, teaching ie shepherds to care for their animals, to practice selective reeding and to improve their shearing methods.

When a modern sales center was established to auction ff the wool it started a real revolution.

The wool market is in the hands of a host of middlemen, from the village grocer who trades flour and rice for wool to the broker who supplies the wool mill. Each of them takes a sizeable profit (a family of wool merchants is reputed to make as much as $2 million per year). Those who make the least are the shepherds.

As the shepherds heard bids seven times higher than the prices they usually obtained for their goods, they discovered two new concepts: price and quality. The kilo of wool they had sold at between 2.5 and 3 rupees in 1963 sells for 5.5 rupees today. The auction at first confused Indians by its speed, but they quickly adapted to it. At Jaipur it formerly took a day and a half to sell 80 bales; now thousands are sold off in a few hours.

Outlets are available immediately, since the Indian wool industry still has to import at high cost the quality wools it needs for local manufacture.

Here, as elsewhere ,the concept of quality is indispensable in meeting the competition of synthetic fibers.

The shepherds' education and training, reorganization of sales methods, sheep selection and soil reclamation must all be carried out together.

This could mean that in the course of a few years the transition can be made from a subsistence to a market economy. ■

Water invested to bring in the greatest interest

The package approach - water, fertilizer, improved seed, tools, credit - could make Bihar self-sufficient

by **AMERIK SINGH CHEEMA**

Water, improved seeds, fertilizer, pesticides are the key words in any vocabulary of agricultural development. Even in India, which has to import such enormous quantities of food, these same key factors have been responsible for considerable progress: a near-doubling of food production over the past 15 years.

Irrigation projects have been given high priority in India's five-year plans. One such project is centered on the Kosi river, popularly known as the "river of sorrow," in Bihar State, close to the India-Nepal border.

The project is aimed at taming the Kosi by completion of 150 miles of levees and a barrage nearly 4,000 feet long. A canal system has been started which should irrigate more than 2 million acres by 1970-71. The project is also designed to protect a 100 mile-wide strip of land from annual flooding. A hydroelectric station, capable of generating 20,000 kilowatts, is in an advanced stage of construction.

The use of Kosi water started in 1964-65 when 6,000 acres were irrigated during the *Kharif* (monsoon) season. This was extended to 60,000 acres in 1965-66 and to 200,000 acres in 1966-67. By the following year some 350,000 acres were being irrigated during the *Kharif* and a similar area during the *Rabi* (winter) and summer seasons. Thus, the total acreage under irrigation in 1967-68 amounts to 700,000 acres. Some 2,000 tubewells are also being dug to irrigate a further 100,000 acres.

The area under annual irrigation should total some 1.8 million acres shortly and should reach 2 million acres by 1970-71, according to the project manager. About 50% of the cultivable area of the Purnea district and 85% of the Saharsa district will benefit from the Kosi canal after completion of all the distribution systems, including the Rajpur branch canal.

The intensive area development program has been introduced into sections of the Purnea and Saharsa districts. The area development commissioner coordinates the activities of the irrigation and development departments. An extension agency — which provides guidance, facilities, funds and incentives to the farmers — works at the village, block and district levels to help bring about rapid transformation of agricultural production. Meetings and demonstrations have proved to be the best way of bringing extension methods to the cultivators.

Land development will be required for optimum use of the irrigation water and a reclamation and development scheme

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has been approved by the Agricultural Refinance Corporation. Reclamation is being carried out by the cultivators themselves and, so far, about 60,000 acres have been reclaimed out of a target area of 300,000 acres.

The level of agricultural production in this area was traditionally very low. Large-scale flooding did not permit growing crops during the rainy season, except on high beds where paddy and maize were cultivated. The construction of river embankments and a canal system has changed all this out of recognition.

High-yielding varieties, together with the use of irrigation water, have brought about a significant upturn in crop yields per acre. Taichung Native 1 paddy and Lerma Rojo Mexican wheat were introduced only two years ago but, already, paddy yields have gone up from 0.3 to 2 tons per acre, while wheat yields have increased from 0.4 to 1.5 tons per acre. These varieties, together with multiple cropping, are enabling Kosi farmers to reap an average of 3 tons of food grains per acre per year as against the 0.5 to 0.75 ton per acre that they achieved before the project started.

The acreage under high-yielding varieties has increased rapidly. The area under high-yielding paddy rose from 30,000 acres in 1966-67 to 120,000 acres this year. Similarly, acreage under the new dwarf wheat varieties increased from 10,000 acres last year to 100,000 acres this year: there was also considerable expansion of the area being cultivated with hybrid maize.

Another notable innovation in cultivation practices has been the change in the farmers' cropping patterns. Prior to the Kosi project, cultivators used to grow one crop every one or two years: farmers are now taking in two to three crops each year. Cropping patterns at present are paddy or maize in the *Kharif* season, wheat in the *Rabi* season and paddy in summer. Most of the irrigated fields have a two or three crops usage. That these patterns have changed so dramatically and so rapidly is due to the availability of irrigation water and high-yielding varieties.

Jute is normally cultivated in the low-lying lands. The intensity of cropping is likely to increase here, too, with the further development of irrigation, for the area is ideally suited for two to three crops a year.

Two or three crops where one grew before — hybrid sorphum on land irrigated by the Kosi

There has been heavy use of agricultural inputs in the project area. The use of improved seed, for instance, has grown from just over 2,000 tons in 1964-65 to nearly 29,000 tons this year. Application of fertilizers has, similarly, risen from just over 1,000 tons in 1964-65 to more than 22,000 tons this year. Also pesticides, the use of which has increased from 200 liters of liquid and 175 quintals of powder in 1964-65 to nearly 12,000 liters and nearly 4,000 quintals.

More machinery has had to be brought into the area in order to ensure that multiple cropping is a success. The demand for improved plows, hand-hoes, thrashers, scrappers, sprayers and dusters is rising rapidly.

The river of sorrow may yet become the river of happiness for the Kosi farmers

The demand for agricultural credit has gone up commensurate with the growth in agricultural technology. The cooperative organizations, which were weak in this particular area, have shown signs of reviving: more than Rs. 10 million were advanced to the farmers during 1966-67, and the demand is much greater this year. It is expected that more than 90% of the loans will be repaid in full.

The economic condition of the farmers has much improved, evidenced by a 400% increase in the business of the Life Insurance Corporation of India in the area. Sales of cars, jeeps, scooters and transistor radio sets have increased considerably. House building activities are evident. A number of graduates — lawyers, professors and doctors — have found it more lucrative to work full-time at agriculture.

The rapid progress achieved so far has, however, posed a number of problems for farmers and administrators alike:

...Considerable marketable surplus has been created. Facilities are needed — good communications, warehouses, marketing centers and processing industries — to deal with this surplus.

...The use of high-yielding varieties necessitates an increase in agricultural inputs — agricultural credit, fertilizers, improved seed, irrigation water, tractors, power and pesticides — which the small farmers cannot afford. Organizations are needed which can provide credit, rent machinery and offer marketing facilities.

...Farmers are generally overdoing irrigation and are creating a danger of waterlogging the soil, as happened in the Punjab where drainage became necessary following excessive irrigation.

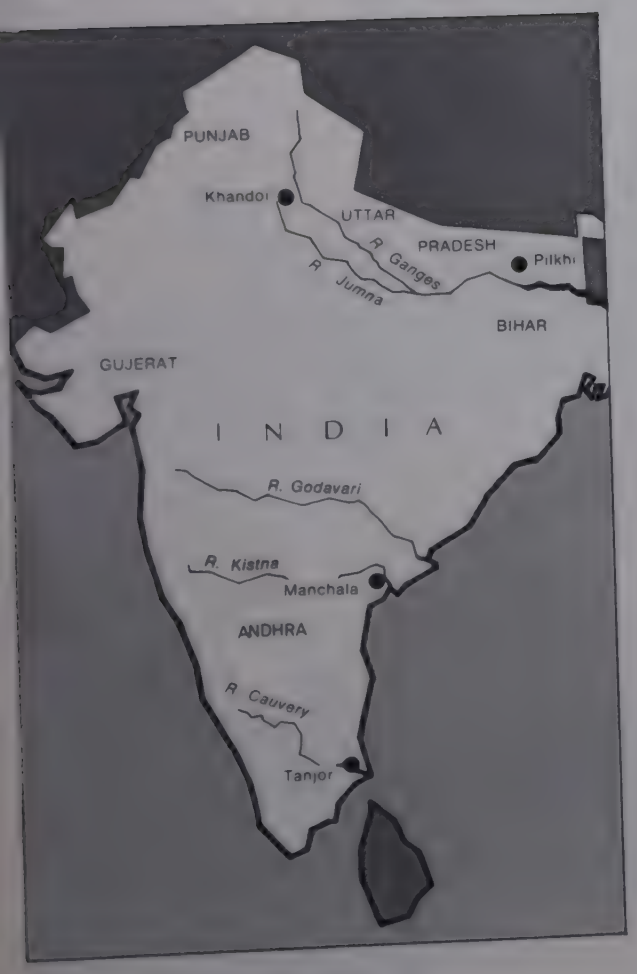
...The project is aware that it must create opportunities for the kind of capital investment which can help build up a sound agricultural development program.

The Kosi river project will provide irrigation, electric power and flood protection to more than 2 million acres of Bihar State. If properly handled it could create a major food producing center in a state which is synonymous with famine both inside and outside India. Already, it is expected that the project area will contribute nearly half of this year's additional food grains grown in Bihar State. There is even the possibility that Bihar will pass self-sufficiency and have an excess of food crops within a few years. ■

Manchala and Pilkhi - techniques are not enough

The negative attitude to manual work, the right to own the land are among the sociological factors which can influence progress

by ***GILBERT ETIENNE***



Few of the world's developing countries are so widely misunderstood as India. Apes, cows, rats, the funeral pyres of Benares and, of course, beggars are thought of as India's typical features: while its starving masses are supposed to be constantly increasing. It this how it is?

Take two phases of the food production-population race, 1951/1961 and 1961/1966. India won the first: production was well ahead of the rise in population and the growth of food imports was checked. India lost the second phase: the population growth rate accelerated reaching 500 million in 1967, production remained static for three years, enjoyed an exceptionally good year in 1964/65, but was then hit by two successive waves of severe drought. The result was a sharp rise in grain imports, with totals tripled reaching 10 million tons in 1966/67. Though serious, the situation was not as dark as it appeared for production statistics were too low.

Since 1967 India has entered a third, vitally important, phase. Far-reaching trends are emerging in the rural areas as government measures to promote agriculture become more effective. Thus the race is far from over.

The word " famine " in India, judging by past experience, means wholesale deaths numbered in terms of tens and hundreds of thousands, or even a million. By this definition, thanks to American grain and the Indian authorities' efforts to distribute it, there was no real famine in 1966/67.

Although this is somewhat reassuring, it in no way lessens the seriousness of the long-term outlook. In ten to twenty years, when India will have a population of 600 to 700 million, all foreign aid, together, will not suffice in the event of severe natural disaster. The need for a sharp rise in production is urgent.

It is often said of India that no progress is possible without completely upsetting the present agricultural structure. It must be admitted that within the existing social and political framework it is difficult to foresee any profound changes. But these structures do not constitute a major obstacle to agricultural progress.

While one can see a proliferation of tiny, and therefore uneconomic holdings, one often forgets that most of the land under cultivation is divided into farms which are, or could be, profitable. The smallest farms range between a little over three acres to ten to twelve acres in size, depending on types of soil, irrigation and crops, but this does not give a complete picture. The farmers' grasp of farm management, closely linked to the caste system, must also be considered. Where the castes exercise a decided influence on agriculture, as in Andhra state, then development is comparatively simple. Where the dominant castes do not engage in agriculture, as in Bihar, then progress is not impossible but it is slower.

Sharecropping and tenant farming are another source of misunderstanding:

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contrary to certain highly debatable opinions, on a national average a very large portion of India's land is cultivated by farm owners.

Physical conditions are another basic variant. Enormous stretches of the Deccan consist of poor soils exhausted by erosion, where rainfall is low and the irrigation potential slight. On the other hand, the Ganges basin, the Coromandel delta and the southern part of Gujarat contain good alluvial soils, well watered by rains, and here irrigation could be greatly expanded. These regions will play a decisive part in the battle for agricultural development. This explains why only about half of India's 330 districts produce a grain surplus.

India has carried out pioneer work in community development and administrative decentralization (*Panchayati Raj*) in order to arouse greater mass participation in agricultural expansion, but it has had to learn some bitter lessons in the process. A multi-purpose approach was, at first, overemphasized. Agricultural strategy has had to gradually change so as to establish an order of priority in productive activities.

The package program formula was introduced in 1960, involving a special effort in the potentially rich regions where progress could be quickest. This has meant combining the major input factors to the utmost extent: small-scale irrigation, fertilizers, selected seed, and pesticides, all accompanied by an extended agricultural credit system.

It is natural that such a policy has taken time to spread in such a vast country. Progress was also hampered by the exceptionally heavy natural disasters of 1965 and 1966, and the large-scale operational phase only began in 1967.

Manchala is a typical village of the Krishna delta in the district of Guntur. Its population was 1,426 in 1961; the total area was 783 acres, of which 266,4 were cultivated; the population density was 180 per square mile. The *Kapu* are the leading caste. There are only a few *Harijans* (former untouchables). On the other hand, the majority of landless agricultural laborers are drawn from the *Yanadis*, of remote tribal descent who are at the bottom of the social scale at Manchala. The area, as a whole, is irrigated by canals issuing from the Krishna river, dating back to Sir Arthur Cotton's large-scale improvement works built in the middle of the nineteenth century.

This water, and the quality of the alluvial soil, permit intensive rice cultivation. However, water is only available from June to January, providing a paddy crop which now totals 2,500 lbs. per acre or an increase of 50% over about 15 years. During the dry season some 450 acres are used for raising chick peas giving extremely low yields (310 to 360 lb/acre). About 148 acres are suited to forage and fiber crops.

The two largest landowners have 30 acres each. There are about 30 farms measuring between 4 and 20 acres: the remaining 140 holdings contain less than 4 acres each.

After many days of close observation two striking features emerge: the high quality of the technical methods used; and the comparative prosperity.

I was at Manchala in the period when the paddy was being transplanted: the men pull out the sprouts and the women transplant them, in rows of ten to twenty.

Almost all the farmers are familiar with chemical fertilizers and even the owners of less than three acres use them regularly: many use pesticides. In 1963/64 I met hardly any small-farmers with sufficient means to buy chemical fertilizers in Uttar Pradesh or in the Cauvery delta in Tanjor district.

Last year, a few farmers tried sowing the new Taichung Native 1 rice variety, but it was not suited to local conditions

It may soon be gone. Pumps may take the place of this water-wheel driven by animal power to irrigate rice-fields in Uttar Pradesh

nd proved unsatisfactory. Another variety, IR 8, seems more promising, although it has not been used at Manchala.

Living standards of the medium-sized farm owners are high, naturally enough, but the very small-farmers and the landless workers are also far better off than those in other regions I visited. Almost everyone eats three meals a day: rice with peppers and vegetables, sometimes a bit of meat, fish and fruit. Both men and women appear to be in good health and live in a normal way, a far cry from the harsh poverty I found in Bihar.

The *Yenadis* and the *Kapu* landowners spend between two and three months a years on rice cultivation. The rest of the time they practice all kinds of small trades which provide free rein for their resourcefulness: besides rat hunting, they make chignons for sale in the cities, help in the textile factories (riding their bicycles to and fro) and work at terracing of the land. Wages for rice cultivation in 1967 were usually three rupees for men, two for women.

Agricultural credit operates mainly through cooperatives. A cooperative society was formed at Manchala in 1964: it has 21 members and, in 1966/67, granted 2,000 rupees on short-term loans. In addition to this very small amount, credit in kind is extended to farmers under the Intensive Manuring Scheme, even though they may not belong to the cooperatives.

Unsatisfied demand for fertilizer

Manchala is part of the Tenali block which covers a total area of 103 square miles and has a total population of 108,194 (in 1961). The package program formula has gradually spread in Andhra, reaching 144 blocks in 1966/67, of which Tenali was one. However, the program does not advance easily: the increase in output of chemical fertilizers falls so far short of the demand that some cooperatives engage in a flourishing black market, a widespread phenomenon through Andhra and other states as well.

As for credit, the funds granted in medium- and short-term loans show a downward trend between 1964/65 and 1966/67. In the latter year, Andhra did not manage to use all the funds loaned to it by the Reserve (Central) Bank. Many societies are already so far behind in their payments that they cannot obtain new loans. Another, though less important, cause for this trend lies in the adverse climatic conditions which prevail in some parts of the state.

Credit against future harvests

A new "crop loans" formula was set up in 1966 to improve credit and avoid losses. It aims at broadening the conditions for cooperative credit by no longer accepting only land or land mortgages, but also future crop harvests, as security. In this way, production can be stimulated while the small farmers can obtain loans which they were unable to get due to their lack of means. This type of credit is granted in three installments: two in cash and one in kind in the form of chemical fertilizers. The system was meant to be applied throughout India beginning with the 1967 *Karif* (monsoon) season, but, welcome as it may be, it has met with inevitable problems in execution. I did not find it widely available, in Andhra, Bihar or other states.

Another marked trend that emerged from my talks with people in Tenali and Guntur was the growing awareness of agricultural problems. In 1963/64 I was struck by the extent to which community development was still unable to shake off the multi-purpose approach.

What are the prospects for the future in the Krishna delta? The Nagajunasagar dam was inaugurated in August 1967. The area it irrigates is not yet being entirely utilized since many canals and other improvement works must still be built. Meanwhile, however, the stored water will be used during the dry season making possible a second paddy crop. Afterwards, the underground water table will provide a similar reserve, thanks to pump operated tubewells. The first of these, which I saw at Manchala, produced excellent results due to a very quick rotation of rich crops: paddy, sugarcane, vegetables. The dynamic nature of the leading castes favors increasingly wide use of these possibilities.

The village of Pilkhi lies along a secondary road leading to Muzaffarpur, the district capital. It had a population (in 1961) of 2,471 and a total area of 1,210 acres. The population density was 203 persons per square mile, and the cultivated area (including 64 acres of orchards) covered 1,000 acres. In the monsoon season, paddy is the main crop, together with maize; in the dry season, wheat and some barley are grown. Small quantities of sugarcane, tobacco and peppers are grown in a few places.

Large landowners are comparatively numerous in this region of India. A leading landowner, *Bhumihar*, owns 100 acres at Pilkhi and 200 elsewhere: another possesses 200 acres. About a third of the cultivated area in the Muraul block, which includes Pilkhi, belongs to farmers owning over 50 acres. At the other end of the scale, there is a proliferation of farmers who own an acre or less.

Why is the present paddy yield only 800 to 1,000 lb/acre on these fine alluvial soils? Firstly, along the middle course of the Ganges and in the delta the riverbed is lower than the field level. It is impossible to build gravity-flow canals like those that existed even before British rule in the Punjab and the southern deltas. Irrigation using pumped water from the rivers was only begun after the end of the last war, following India's independence.

Forbidden to touch the plow

I wondered whether the farmers could have bored wells as they have done in Uttar Pradesh and in the Punjab; but I saw practically none. This is where the human factor comes in.

For centuries, Bihar was one of the seats of Indian civilization. Life was easy, the area was not highly populated, and the land was fertile. Normally, the rains were sufficient for rice cultivation, the moisture remaining in the soil even provided for a crop in the dry season. So why bother boring wells? Moreover, the high caste *Bhumihars* and *Brahmans* observe the taboo forbidding them to touch the plow: they take little part in agricultural work and use low caste labor.

From the 19th century onward, the comparative balance between population and resources (which had only been broken previously in times of extreme natural disaster) was permanently and increasingly disturbed. The population began to grow but no one did much about it: the result was increasing poverty. At Pilkhi, scenes of Indian poverty are widespread among the families of farm wage workers and very small farmers. Social tension is high, and during my talks with the poorest people discussions quickly grew heated. Many of them

barely get two scant meals a day.

The defects in technical methods used in the area are striking. The rice fields are badly leveled so that there is too much water in one corner of the field while in another the sprouts are dry. Only a single hoeing is performed during the growing period of the paddy. The apathy of the upper castes even seems to have spread through to the lower ones. At Pilkhi, even the *Chamar* (former untouchable) women do little agricultural work, only picking forage grasses to feed the cattle. The transplanting of the rice is performed by three or four men who work in a disorganized way in sharp contrast to the rows of women in the rice plantations of the Krishna area.

There is no question of farmers' acceptance of fertilizer as a short-cut to higher returns

One might think the situation desperate but the outlook is slowly becoming brighter. The 1966 drought shook agricultural life from top to bottom. Both rich and poor were finally concerned about the problem of the water supply. "What do you need most?" I asked. "*Pani, sinchai*" (water, irrigation) was the farmers' automatic reply.

Until 1966, the state tubewell which had been installed at Pilkhi in 1954 had hardly been used: now it no longer meets the demand. The new varieties of wheat, maize and rice need more water. Some of the landowners are beginning to pull their weight as they see some of the first results of the pilot plots.

The new crop varieties are beginning to attract attention. Mexican wheat sown at Pilkhi on a test plot of 4 acres in 1966/67 proved successful. In 1967 the area under hybrid maize totaled 60 acres, compared to 22 acres in 1966. Meanwhile, the first paddy fields (Taichung Native 1 and Nagina) are spreading in the midst of impoverished rice plantations. The maximum yields in the initial stages come to about 2,700 lb/acre for paddy, 2,500 for wheat, and 2,700 for maize.

This trend coincides with the advance of chemical fertilizers, and is equally marked at both the block and district levels. The authorities can no longer meet all the farmers' demands for the installation of private pump wells because there is not enough drilling equipment.

But Indian agriculture, as a whole, can hardly be judged on the basis of only two examples, however contrasting. Let us look briefly at a few others.

The Cauvery delta in Tanjore district resembles the Krishna and Godavari deltas, marked by irrigation works and rice cultivation. It differs, however, in many areas of the delta because of the prevailing influence of the *Brahmans* who are not as enterprising as the *Kapus* of the Krishna delta. In 1964 I saw that the package program had made far less progress in Tanjore than in the West Godavari district, though these were the first two districts to adopt it in 1960.

Nevertheless, despite a less enterprising spirit and a great deal of share-cropping, between 1964 and 1967 the Tanjore farmers have built many small tubewells for use in the dry season when the canals are low. Of the 3,000 they have put in, 2,000 are now in operation while 1,000 are still waiting to be connected to the electric grid.

Two crops instead of one

There has been another change in methods as well. Formerly the local paddy variety, *samba,* had a long growing season lasting from August to September. Now it has been replaced by a quick-growing variety (ADT. 27) producing two crops on the same land within the same period.

The southern part of Gujarat, the Jat-inhabited areas of the Punjab and of western Uttar Pradesh are making equally quick progress. The village of Khandoï, in the Bulandshahr district between the Ganges and the Jumna rivers, is a good example of this trend. It has a population of 1,227 (1961) and a total area of 680 acres, of which 618 are under cultivation. Since 1964 when I left, eight new private tubewells have been installed by farmers owning 15 to 35 acres, in addition to the distributary canal, the State tubewell, other private tubewells and oxen-drawn wells, all substantially improving irrigation.

Tests carried out in 1966 with hybrid maize proved unsuccessful because of the poor quality of the seed used. On the other hand, the Sonora and Lerma Roja Mexican wheats were very successful on the test plots. In 1967, farmers were planning to plant most of the wheat-growing area of the village, 150 acres, with these selected seeds: this should raise yields from 1,150 lb/acre (with the local variety) to over 1,800 lb/acre initially.

While consumption of chemical fertilizers is increasing, there have also been some serious setbacks. The Third Economic Plan originally set a total consumption target of: 1 million tons of nitrogenous fertilizers (N), of which 800,000 were to be produced in India; 400,000 tons of phosphoric acid (P_2O_5), all to be domestically produced; and 200,000 of potassium (K_2O). In 1965/66 output of the first two totaled 344,000 but by 1966/67 it had only reached 453,000 tons. Imports have risen sharply since 1965 to fill part of the gap.

Since 1967/68 production has entered a new and important phase. Many of the factories under construction are almost finished, and when they begin* annual production capacity will reach 681,000 tons of nitrate fertilizers (N) and 419,000 tons of phosphate fertilizers (P_2O_5). But despite these advances there will still be problems in organization of production. The big question is whether the recent delays will be made up in time for the 1970/71 output to reach the planned 2 million tons of nitrogenous fertilizers (N) and 1 million tons of phosphoric acid (P_2O_5).

Distribution problems must also be considered. The government has freed this sector, withdrawing the virtual monopoly it had granted the cooperatives, enabling private enterprise and cooperatives alike to participate in the marketing of fertilizers. Nevertheless, bottlenecks remain, of which the following is an ex

* *Cf. World Report, Ceres No. 2.*

ıple: the government-operated fertil-
r factory at Sindri in Bihar in August
967 had 200,000 tons of ammonium
lphate reserved for the local govern-
ent, which failed to have it delivered.

Production of selected seed is another
pidly expanding sector. One example
the program of the University of Pant-
agar in Uttar Pradesh. It is directed
y D.P. Singh, former under-secretary of
ıe Plan Commission. As a higher civil
ervant, and a man of strong character,
ith a thorough knowledge of agriculture
nd farm life, he is managing Pantnagar
emarkably energetically. More and more
f the university's 1 million acres are

Short- and medium-term loans granted by cooperative societies totaled 4 billion rupees in 1966/67, compared to 2 billion in 1960/61 ($1 = 7.50 rupees).

These efforts reflect a greater awareness of agricultural problems among the authorities, a definite willingness to invest in this sector and to release foreign exchange needed for the import of equipment. The trend toward concentrating production factors in areas where progress is particularly likely is showing results.

Another significant development is taking place at the farm level. In a great many regions the problem is no longer one of stimulating the farmers to modern-

The untouchable plow — social and cultural attitudes toward farm inputs can make or break governmental plans to expand agricultural production

being used to increase the new seed varieties. Between 1965/66 and 1966/67 the area under hybrid maize increased from 300 to 3,000 acres. Mexican wheats and paddy registered similar increases. Pantnagar is launching activities on a large scale with the aid of the World Bank and FAO: in five years 50,000 acres are to be used to increase seed, which should meet the needs of Uttar Pradesh and other states as well. Other research stations are also more active.

On the pesticide front, too, there has been progress both in research and utilization. Small-scale irrigation works are gaining ground at a steadily accelerating rate. In 1966/67 no fewer than 200,000 pumps were installed beside rivers and wells, and 26,000 tubewells were bored.

The Reserve Bank and the cooperative banks are expanding their activities.

ize their methods but of meeting their increasingly pressing demands for fertilizers, pumps, seed, etc. The rate of change varies widely, as can be seen from the two examples I have described in Andhra and Bihar, but it is significant to note that even in a lethargic state such as Bihar a similar change is taking place.

Viewing all these facts together one can state that, providing the present agricultural strategy is continued and the political situation does not deteriorate too far, India is not heading toward famine. All those competent in the field whom I met, whether Indian or foreign, shared this opinion, especially those working with the Ford and Rockefeller Foundations and U.S. AID. There is a fair chance that in 1967/68 production will be higher than in 1964/65, despite unfavorable natural conditions.

However, it is important not to fly from one extreme to the other in the light of these encouraging observations and assert, as some prominent Indians have done, that the country's food deficit will have been eliminated by 1970/71 and that they will soon be able to export grain. These people dangerously underestimate the problems of execution. Development appears comparatively simple viewed from their offices in Delhi or Bombay. In the field, all problems run into a multitude of practical problems.

I have already cited some examples in discussing crop loans and could add many more. For instance, the use of the additional credit planned by the Reserve Bank for demands based on high-yield varieties was disappointing because of weaknesses in the cooperative structure, overcomplicated formal procedures and lack of coordination. "Accidents" have occurred, like the failure of Taichung Native 1 in the Krishna delta and of hybrid maize, in 1966, in western Uttar Pradesh.

These growing pains are hardly surprising in a country stretching over 1.2 million square miles with 565,000 villages. Any idea, or decision, takes some time to reach the rank-and-file. But what counts, rather than the arbitrary fixing of 1970/71 as the end of the food shortage, is the realization that a far-reaching trend is under way. Regional differences in pace do not matter, provided the nationwide growth rate overtakes and keeps ahead of the population rate.

This strategy might be challenged on the grounds that it is antisocial, since it benefits mainly the more favored regions and the middle classes of farm society. Wages of the agricultural workers are tending to rise in the comparatively advanced regions like Guntur, but only by stages after intervals of time.

Can we approve such an agricultural policy? Yes, for this is the only way out, even from the social standpoint. Concentration of investment in the most backward regions and among the poorest farmers would inevitably slow down the growth rate. Unless production picks up quickly, providing the government with needed reserves, there is a risk that famine may indeed strike some day. Should that happen, it would not affect the rich or the middle class farmers so much as those who live on a tiny plot, or have no land at all. ■

The waste in aid

The future will bring greater demands on aid, necessitating even closer cooperation at all levels

by HANS JØRGEN KRISTENSEN

Much has been said over these past few years about the need for increased assistance to the developing countries in the field of agriculture. Discussions at UNCTAD 2 showed that the 1% goal does not meet the needs of developing countries.

Recent OECD (Organization for Economic Cooperation and Development) statistics on assistance to agriculture disclosed that this amounts to 8% of total bilateral assistance, and 18% of total multilateral assistance, plus the indirect benefits from assistance to infrastructure which may often be of substantial importance to agriculture, not least in the marketing of commodities.

These figures give a somewhat clearer picture of the progress of events over the past few years, but they do not tell us whether such assistance is contributing to a balanced development of the various sectors of the economy of the countries concerned.

We want to know even more than this. As the planning of agricultural development becomes more accepted, it should become possible to define the needs of assistance in the agricultural field and to outline priorities. It should also be possible to establish the role of agriculture in the context of general economic development. We can only hope that the ambitious work being undertaken by FAO's Indicative World Plan for Agricultural Development (IWP) will give us the needed answers.

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There is another task which is as important as efforts to augment the present level of assistance. Are we — both developed and developing countries as well as the international organizations — doing all we can to make assistance as effective as possible?

Let me begin with an obvious statement which is all too often forgotten: there is a percentage of waste in all human effort. We must carefully scrutinize the ways in which things are done but we must also remember that there are definite limits to the efficiency of any performance.

The bulk of efforts aimed at making assistance as effective as possible must come from the country concerned, and efficiency in local administration is therefore a key element. Assistance from outside usually comes from a large number of more or less unrelated sources: bilateral assistance from individual donor countries; multilateral assistance from a variety of partially interlinked international organizations. This presents a risk that assistance is given piecemeal with no consideration being given to priority needs.

The usual response, whenever lack of coordination of aid efforts is discussed, is that this is the responsibility of the recipient country, and that only the country can say what are its priority needs in the agricultural field. This would be true if the country concerned had the people and the machinery to define and execute a sound development plan of sufficiently long-range character: but, in practice very few countries can attain this standard.

An important element in outside agricultural assistance should, therefore, con

st of strengthening the administrative achinery, particularly at the planning age. Let us be realistic and acknowlge that people able to carry out such ork are not easily found, even in the ndustrialized countries. Useful work ight be done by the FAO country reresentatives in their proposed new setp, in which one of their main functions vill be to assist in planning agricultural levelopment.

It is my opinion that a good deal of coordination will be undertaken from the outside for years to come. But such efforts must be in close cooperation with the recipient country. What we need are practical solutions to practical problems:

Multilateral and bilateral aid is improving rice-growing areas in West Africa

we do not want situations where outside forces try to direct development.

Ways of ensuring coordination of agricultural assistance will vary greatly according to the type of aid and the practical problems involved: financial assistance, often part of more generalized aid, falls in one group; technical assistance normally lends itself to a different procedure; while food aid lies somewhere in between. The sheer size of a particular aid effort may well influence the practical approach.

All this leaves the question of overall coordination hanging in thin air. The answer for FAO may be the IWP, but, in general, the best that can be offered is an *ad hoc* approach to individual cases.

Coordination efforts in the field of financial assistance are, and should be, centered around the World Bank group. This work calls for high-level competence and it is important that the World Bank experts be fully utilized. Consortia arrangements between major donors are becoming of increasing importance and the World Bank group has wide influence in this context. The addition of loans on a bilateral basis from smaller donors means, though, that greater efforts must be exercised at overall coordination.

One of the first arrangements for coordination in the field of financial assistance to agriculture was the 1964 agreement between IBRD (International Bank for Reconstruction and Development) and FAO. This set a pattern for further activities, but it should be realized that this particular agreement can only work in a satisfactory way if FAO takes part in all phases — and this calls for well-qualified experts and, accordingly, for a larger budget.

The greatest risk of dissipating aid efforts is found within the field of technical assistance. There is no need to talk about errors, often arising from attempts to impose an inadequate or incorrect methodology upon the recipient country. Let us mention, instead, risks which are inherent in competition between bilateral donors; in the giving of assistance to one particular stage of a process (leaving the remainder of the chain to itself) and in training people without afterwards giving them the funds to put their new knowledge to practical use.

Strangely enough, it is in the technical assistance field that the willingness to coordinate assistance seems to be at its weakest, particularly on the part of the major bilateral donors. The results are sometimes shocking: stories abound about the duplication of effort between bilateral expert missions.

This problem is partly a question of the efficiency of the international organizations. Criticism is leveled mainly from two angles: such organizations are expensive; and they have not solved the problem of coordination among themselves. The first point seems to me of lesser importance, but the second touches upon a sore question.

Agencies at cross-purposes

FAO, which should be at the center of coordination in the agricultural field, is not yet fulfilling this role. We hope that the present reorganization of FAO, and the IWP, will put this agency in a better position to shoulder this responsibility. But it is not enough: many aspects of agricultural problems are, at least partly, the responsibility of other agencies such as Unesco, ILO (International Labour Organisation), WHO (World Health Organization), UNIDO (UN Industrial Development Organization), or of the United Nations itself. And let us frankly admit it: the United Nations has not, so far, managed to solve its own coordination problems.

Rather than waiting for perfection of the international organizations — we shall never get that far, partly because of the sheer pressure of work — let us see how technical assistance can, in practice, be coordinated through FAO.

It is quite evident that small donors, who are nowadays rapidly increasing their aid efforts, have a particular interest in seeking advice and assistance from international organizations. The preparation of projects calls for considerable knowledge of conditions in the recipient countries. Advice from an international orga-

nization often allows a shortcut, resulting in both increased efficiency and lowered costs. These countries all have a serious shortage of expertise. So far, comparatively limited use has been made of such international facilities.

Hybrid aid projects

Sweden and Denmark are probably the two countries which have gone furthest in their cooperation with FAO.

In the case of Sweden, it is interesting to note that efforts have been concentrated on a few major projects. An FAO study on agricultural cooperative credit in a number of countries was financed from funds freely made available by SIDA, the Swedish International Development Agency; one result has been the detailed preparation of a large integrated project in Afghanistan, also wholly financed by SIDA. Such assistance is based upon a policy which combines bilateral assistance to a very limited number of countries with assistance through international organizations benefiting a wider group of countries.

The concept of multi-bi projects was introduced a few years back in Denmark. The Danish Board for Technical Cooperation with Developing Countries has financed a number of Freedom-from-Hunger project proposals, mostly by providing the funds and/or expertise through FAO. As examples may be mentioned a rural youth project in Liberia, construction of bore holes in Malawi and a dairy development center in India. To the Danish authorities this means, *inter alia*, increased aid without any major increase in administrative activities in Denmark. One of the larger private aid agencies, the Danish Inter-Church Aid, is also partially using FAO channels in its work.

Clearly, the employment of FAO expertise may vary greatly: financing projects through FAO (with or without providing the experts needed); using FAO project proposals in bilateral assistance; or, more modestly, using FAO as an information center for bilateral activities in the agricultural field. Even the last possibility is used sparingly by most donors.

It may be argued that such information assistance is ensured within the recipient country from the UN resident representative and, possibly, the FAO country representative. But I have doubts both as to the extent to which this is actually happening, and whether it is enough, considering the centralized character of an organization like FAO.

Forests are a renewable resource which can be managed to perpetuity. Colombia is using multilateral technical assistance to attain self-sufficiency in forest products

It is worth mentioning that President Johnson's Science Advisory Committee recently expressed the wish that FAO be increasingly used as an informational and coordinating agency. It is to be hoped that this will start a new approach to this problem, particularly on the part of the major donor countries.

Let me add that in Denmark it is considered quite natural to keep FAO informed about all major bilateral activities in the field of food and agriculture, as well as where advice is needed in the planning of projects.

Why do we not try out such information and coordination activities? The United Nations Development Program/FAO have provided a partial basis for discussions on the three countries of East Africa (Kenya, Tanzania and Uganda) through the East African livestock survey of 1967. Kenya has maintained contact with a number of donors: why not attempt a broader exchange of views at regular intervals involving FAO, OECD and other interested organizations?

Food aid is easiest

Food aid, which is a special — and hopefully a short-term — version of financial assistance, is probably the field in which coordination has so far been most satisfactorily solved. The reason for this is obvious: 95% of bilateral food aid stems from one donor country which has, at the same time, been very active in promoting the UN/FAO World Food Program.

But this is no guarantee for the future. If surpluses — in the Common Market countries, for instance — become a permanent feature, will the efficient machinery of the World Food Program be used as it should? Recent discussions concerning wheat deliveries under the three-year, 4.5 million tons Food Aid Convention warns against having too high hopes: the bilateral approach appeals to many.

My conclusion is that we are not doing our best to ensure that our aid efforts in the agricultural field are used to maximum effect. Donors maintain little contact between themselves and they do not profit enough from the expertise of international organizations, to which they are the major contributors.

This problem will be greatly aggravated unless new attempts at coordination and integration of assistance are made.

Assistance in the agricultural field will become a very complicated business over the next 10 to 20 years. There will be a continuing, and increasing, need for short-term food aid. This must be intimately combined with assistance to promote local agricultural production, both through the provision of production requisites (imported and locally produced) and by means of technical assistance.

If donor countries do not improve the means of coordination they will find themselves faced with a serious situation. Let us try to find practical solutions beginning now. ■

Diary of a Soviet engineer in Ceylon

by PAVEL FIALKOVSKY

Do the large dam projects take sufficient account of the social consequences of change? What is the best way of carrying out such projects?

Eight hundred years ago in Ceylon, King Parakramabahu I decreed that "not even one drop of rainwater will flow into the ocean without being made useful to man."

An idle boast, perhaps, but it reflects the level of agricultural engineering attained in ancient Ceylon which reached its height in the 12th century and has not been surpassed since.

The ancient civilizations were centered on the northern plain where the art of irrigation has been practised back to at least 500 B.C. One of the earliest of the so-called tanks — which are actually lake-sized reservoirs kept filled by river diversion — was built in 300 B.C. and can still be seen near the ruins of Anuradhapura, the old capital city.

These civilizations decayed under the impact of war and disease. The land gradually fell into disuse and reverted to jungle. The remnants of the population, plagued by malaria and typhoid fever, fled into the mountains and settled there.

Today, population is rising sharply and, with it, the need for food, satisfied only by expensive imports of foodstuffs. There is an evident need to increase agricultural production, particularly in the dry zone so that people could be resettled there from the overpopulated wet zone. This need is becoming more and more acute each year and is the driving force behind the Mahaweli Ganga development project.

This is the project which brought me to Ceylon three years ago as the FAO project manager, heading a team of agronomists, soil scientists and engineers.

Since then our team of FAO and Ceylonese specialists has carried out an irrigation and hydropower survey. We then produced a master plan for development of the region — involving dams, power stations, tunnels, canals and hundreds of thousands of acres of irrigable land — and, finally, a feasibility study for the first phase of construction.

As a Soviet hydraulics engineer it was interesting to observe at first hand the larger kind of U.N.-sponsored development projects now being carried out by national and international experts working together in many countries of the third world, and to see the economic and social problems which they sometimes generate and which are, perhaps, even more important than the technical ones.

Wet and dry zones

Ceylon lies like a pear-shaped drop in the Indian Ocean, some 100 miles east of the tip of India. A mountain range, rising to some 8,000 feet, covers the southern bulge, falling to a vast coastal

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plain which encompasses the northern part of the island. Ceylon is some 25,000 square miles in area, roughly equivalent to Ireland, Panama or Sierra Leone.

Ceylon is divided into two zones by the effect of the twice-yearly monsoons. The southwest monsoon is partly screened by the mountains and, as a result, rainfall is very unevenly distributed between the two zones. The wet zone, in the southwest, receives 150-200 inches of rainfall a year and covers a third of the land area, on which live three quar-

ters of the population. The remainder of the island, the dry zone, receives 30-75 inches of rainfall a year and agricultural production is largely dependent upon irrigation.

At the present time, enormous volumes of silt-laden water flow into the sea. It has been estimated that the Mahaweli Ganga itself, (which means, literally, "big sandy river"), has a flow of 6.5 million acre-feet at its mouth, enough to irrigate nearly a million acres, most of which is lost without being used.

Main crops are paddy, tea, rubber and coconut. The last three commodities acount for nearly 95% of the country's exports. Proceeds pay for most of the imported foodstuffs: rice, chilies, onions and milk products.

The cash crops are grown mainly on large estates, such as the tea estates in the western basin near the town of Kandy. The bulk of the population are peasant farmers, living in mud-walled, palm-leaf thatched village houses, with a few acres to cultivate on a share-cropping basis. The diet is mostly rice, with a few vegetables cooked in curry, dried fish, tropical fruits and, occasionally, meat and milk products.

Agricultural production has risen considerably in recent years. In fact, due to the efforts of government and aid agencies, such as the Freedom-from-Hunger program to increase fertilizer use, rice production has risen to the point where rice imports have steadily decreased over the past few years. Even so, adverse terms of trade and population growth (2.5% per annum) have counteracted this progress to the point where real per capita income has hardly increased.

Population growth and increases in income are expected to raise demand for food close to 4% per annum. Agricultural production will have to be greatly increased if the country's economy is not to be swamped by increased food imports. It has been estimated that if domestic production was not increased, such food imports might account for as much as $840 million per annum by 1990.

Attention was drawn to the Mahaweli Ganga as a prime source of water for power and irrigation in 1961 by an IBRD (International Bank for Reconstruction and Development) mission. Separate surveys were carried out the same year by USOM (United Stations Operations Mission) and Canadian Hunting Survey Corporation. Discussions between FAO, UNDP (United Nations Development Program) and the Ceylonese government went on for nearly two years before the UNDP project finally became operational.

The ultimate aim of the project is to produce food, cash crops, agricultural raw material for industry and electrical power. Realization of the project over the next thirty years should solve the country's food and power problems. It would also bring large volumes of unused water and enormous areas of unused land into production, and would provide employment to a million people in agriculture and industry.

More than a million acres of land can be irri

The project was supposed to be carried out over four years. It was, in fact, concluded in three years largely because the Ceylonese greatly increased their assistance to the project. At one point, half of the entire survey department was working with us.

As it was we lost a great deal of time collecting statistical data which was essential to the survey but which was not envisaged as part of our task. It is not unusual for survey projects such as ours to spend the first year on pre-survey work which, sometimes, could have been carried out in advance by the country or by FAO.

The project area covers nearly half of the country and shows on the map as a stain which colors the northern end and the top of the central mountain range. It extends over some 10,000 square miles, including more than half of the dry zone.

What kind of teams are best?

The international team included five experts from the Soviet Union, including myself. Altogether there were 14 on the FAO team including British, Dutch, Israeli, Japanese and Swiss experts. The joint team included 15 Ceylonese experts under the direction of Mr. R.S. Cooke, an irrigation engineer who was co-manager. More than 200 Ceylonese agronomists, engineers and technicians worked with the team for most of the time.

The composition of teams to carry out such projects raises some interesting questions. There is, for instance, the relative efficiency of international, national or sub-contracted teams. All our work was done by our own mixed team, apa

ater now pouring uselessly into the sea. Here, an existing reservoir scheduled to be improved

from some geophysical investigations which were subcontracted to a French firm.

There was a language problem, though we managed alright with interpreters. Our working language, between ourselves and with the Ceylonese, was English. I personally prefer the international team because there is an intermixing of training and disciplines. One can compare various viewpoints and decide on the best approach.

Need for full-time economists

Our team was large but should have been larger. We should, for instance, have had a full-time economist advising on the technical recommendations. It is not sufficient to rely on occasional visits from consultants and it is a waste of time to wait until the project is finished before subjecting the results to economic analysis.

I realize that dams are sometimes built which are uneconomic and that, if some economists had their way, there would be no dams at all. There has to be a compromise between the two and it might as well be done while the project is in progress.

The value of short-term consultants is rather dubious as we found that it took our own experts three months to understand the problems involved. I see little use in consultants who come for a short visit to advise and recommend, unless they are on very specific assignments.

I do not believe the argument that large consulting companies have no contact with the country in which they work: they can have as little or as much contact as any international team. My main objection is that most consulting companies use the same system of short-term visits by high-level consultants, and, again, such visits seem to me of dubious value.

It is, however, probably better to use subcontractors for detailed studies. Our own team suggested lining the canals to prevent seepage, for instance, but the detailed costing would best be done by a consultant subcontractor.

We are facing a worldwide problem to find good experts, no matter whether for national or international teams. FAO has difficulty enough getting good men for its own headquarters staff and this is certainly a good argument against decentralization into regional offices, and for an interdisciplinary, interdivisional approach to field projects.

I also feel that project managers must be primarily scientists or technicians who can understand the problems involved and who are in a position to assess results as they come in. It is undoubtedly helpful to have administrative staff but I cannot go along with the view that the project manager should come from business administration or industrial psychology.

More than a million acres

What did the project team find out? We found that by regulating the flow of the Mahaweli Ganga, its tributaries and the Maduru Oya, it would be possible to store some 6 million acre-feet of water, in 15 multipurpose reservoirs, sufficient to irrigate 700,000 acres of paddy, or 1,300,000 acres of cotton, groundnuts, chilies and other high-value crops, on a two crops per year basis.

At the moment some 250,000 acres are partially irrigated from available reservoir water. The survey team found that there were some 650,000 additional acres of good land which could be irrigated, with a further 570,000 acres which should be reserved for forest use.

We found first-class soils and favorable conditions for irrigation. The master plan calls for 40 hydroelectric plants with an installed capacity of 917 megawatts and a potential average annual output of nearly 5,000 million kilowatts.

Flood protection was another aim of the project and we drew up plans to stop inundation around two townships in the upper reaches and over some 200 square miles in the lower flood plain and delta.

The cost of land clearance, irrigation, drainage, flood protection, land development and power stations has been estimated at Rs. 4,664 million. Total capital costs, including such items as power transmission lines, comes to Rs. 6,703 million, about $1,125 million.

On the other hand, the total value of added agricultural production at world market prices, following completion and development of the entire project, has been estimated at Rs. 1,240 million, plus another 110 million for value of power generation. This means that ten years at full production could wipe out the preceding thirty years of financial drain.

Even so, this is far too rich for Ceylon's blood and financial aid of this volume cannot be visualized in the forseeable future. The project has, therefore, been broken down into three phases covering 27 years from 1970 to 1996.

A feasibility report has been prepared covering the first phase which, in itself, consists of three major subprojects. The first of these would consist of a concrete barrage upstream at Kandy. Water would be diverted through tunnels, canals and interconnecting rivers to being some 100,000 acres already under irrigation to an all-year-round basis, also adding a further 84,000 acres.

The second subproject would include a high dam, second largest in the project, and would allow 74,000 acres of irrigation in what is now jungle area. The third envisages the largest dam, or multi-storage reservoir, in the project which would bring another 76,000 acres of new land into irrigated production.

Altogether, this first phase would improve 144,000 acres and would add 184,000 acres of new land. Hydroelectric installations would produce some 1,000 million kilowatts per year.

The second phase follows the first without interruption, bringing water to 230,000 acres from storage reservoirs constructed during the first phase. The third and final phase provides for irrigation of 342,000 acres in the north-central part of the island and completion of hydropower development.

The Ceylonese government has decided to start construction in 1969 of the barrage and irrigation canal system which forms the first step in this long chain of development. The contract for final engineering specifications has already been awarded. The World Bank is interested in investment and has sent another mission to Ceylon to investigate. The French bilateral aid program may also help the project.

I am an engineer. From my point of view there was a problem — the need to greatly increase food production through irrigation — and a possible solution — storing and using river water for irrigated agriculture and power production. As an engineer I enjoyed helping to put the two together in the most professional way possible.

What happens next?

So many of the large engineering projects tend to neglect the end use aspects, and ours is no exception. There was no budget for pilot irrigation projects, experimental farms, or basic research into problems of credit and marketing. An IBRD team of extension and marketing specialists has, however, just visited the area and there might be a UNDP project to cover some of these aspects.

The first phase of the project will mean considerable resettlement from the north in order to cultivate the new land. The problem is that, although paddy rice has been the traditional crop of the area, the soils are of excellent quality and would be much better utilized growing cash crops which will bring in higher returns to the farmer.

The Ceylonese have had little experience in growing these new crops and there will have to be a great deal of extension effort in order to demonstrate these new methods. At the same time, there will have to be a considerable investment both in skills and capital in establishing settlements and building up an infrastructure of roads, schools, stores and clinics.

The team sociologist carried out a study of previous colonies, one of which was started almost thirty years ago. He found that, generally, yields were below the national average, that improved seeds and insecticides were used by only half of the farmers and improved paddy practices by only a quarter. No particular system of crop rotation had been adopted and there was a very low standard of animal husbandry. He also found that most of the settlers earned less than $400 a year and that two thirds were in debt. Most of them felt that they were lacking veterinary, education and health services.

He recommended that priority should go to those settlers who had had experience in growing needed crops and that colonization officers should be given more extension training. He also urged youth schemes, and the availability of good housing, drinking water, stores and dispensaries.

Of course, he only studied three communities. At the same time, if these established settlements lack such essentials it emphasizes the need for a great deal of planning, improved extension services and capital investment which must go into the new settlements.

The project has been designed so that it fits in with Ceylon's own five-year development program. Even so, it is only feasible if certain conditions are met. There has to be a progressive increase in the rate of land development during the first few years so as to build up the capacity required to develop 20,000 acres of new land annually. Settlers must be provided with all the production requisites they need — improved seeds, fertilizer, pesticides — in such a way that they can buy them when they need them. An implementation agency must be established and there must be a network of extension services, pilot farms and experimental centers.

We engineers have done our work as best we can. Ceylon needs this project but skill, energy, drive and money are needed to carry it out. This seems to me to be the big gap in our present attempts at international development. Proposals are left to the vagaries of international financing and political decisions, or to sometimes inexperienced, or ill-equipped, national effort. We have organizations to carry out natural resource and preinvestment surveys but we lack a satisfactory follow-up procedure. ■

Debate on the next development decade

Further thoughts on a global plan for development and on the success or failure of UNCTAD 2

by ***HANS W. SINGER***

Jan Tinbergen's article in the last issue of *Ceres* reminds us once again of his status and of the tremendous contribution which he has made to development economics.

While I cannot really disagree with anything he says, there are two aspects of his article on which I would take a somewhat different attitude. To start with, he seems to imply that all has not gone well with Development Decade 1. Certainly we have not done as well as we might have hoped; but the current fashion of talking of a "decade of frustration" is somewhat exaggerated, although it may serve useful political purposes in reminding us of the continued urgency of the development problem.

It is true that progress in the development decade of the 1960s has been slower than in the preceding decade of the 1950s — judging by the General Assembly's standard of a national income rise of 5% per annum — but we must immediately make two reservations:

...Firstly, our knowledge of national income statistics in developing countries is by no means sufficiently precise, or sufficiently advanced, to be certain that a growth rate of 4¼ to 4½% per annum, characteristic of the later 1960s, is really a deterioration compared with the statistical growth rates of 4¾ to 5% per annum characteristic of the early 1950s.

...Secondly, there is considerable doubt whether the hallmark of national income growth is really the best index of the progress of underdeveloped countries. When we substitute other more direct indicators, such as improvement in the literacy rate, increases in the stock of educational capital within the population, or health indicators such as the incidences of certain diseases, the picture of the 1960s is by no means one of slower progress than in the 1950s: rather the contrary.

It is a deterioration in the international position of the developing countries, rather than a deterioration of internal factors within them, which accounts for the apparent slowing down of the growth rate of aggregate national incomes.

The terms of trade — the relationship between prices which the poorer countries obtain for their exports and prices which they have to pay for their imports — have sharply and almost continuously deteriorated during the 1960s.

At the same time, the volume of their exports, consisting mainly of primary commodities threatened by synthetic substitutes and not in highly elastic demand, has failed to keep in step with the increase in volume of world trade in general. The developing countries' share in total world trade has continuously diminished.

Aid in nominal terms has stagnated at the same time and, in real terms, has sharply declined in relation to the national income of the richer countries. And this in spite of the unanimous resolution of the General Assembly — accepted by the richer countries themselves, who have indeed tried in OECD (Organization for Economic Cooperation and Development) and other organizations to carry out the intention declared in this resolution — to devote 1% of the rising national incomes of the richer countries to aid.

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A rough statistical analysis leads one to the conclusion that, in the absence of this deterioration of international relations in the developing countries, the growth rate of national income in the underdeveloped world as a whole would have been quite substantially in excess of the target of 5%.

I cannot help but think that this peculiar combination of the 1960s — faster internal growth than in the previous decade hindered by unfavorable international factors — is intrinsically more encouraging than the opposite situation would have been: slowing growth of internal capacity compensated by favorable international factors.

Two-pronged attack: global and national

In the long run, it will be the *internal* capacity of the developing countries for growth which will count: the international situation will not, and cannot, continuously deteriorate to the disadvantage of developing countries.

This leads me to my second reservation concerning Professor Tinbergen's article. Despite all the emphasis that is placed on the limitations of the nation state as an instrument of international and development policies, we cannot disregard the objective of creating and strengthening national identity as a force in development, nor can we disregard the crucial role of national governments.

It is because of the progress which we have made in national planning, and in the development of more coherent and better national policies toward development, that we find a strengthening of internal capacity for growth inside the developing countries. The planning ideas of Professor Tinbergen himself can take no small part of the credit.

Yet these national procedures and policies are still capable of very considerable improvement. The development of 'global' strategies should not place us in the position of paying less attention to those improvements in national planning and policy formulation that are still crucial factors in the progress of the developing countries.

Good national planning must be combined with international action designed to stop such factors as the deterioration in terms of trade, the concentration of exports of underdeveloped countries on commodities with a low growth potential, the effect of their increasing indebtedness, the erosion of aid in volume as well as quality and the strain on international monetary liquidity.

There is no contradiction between the two approaches but the continuing importance of good policies and good planning procedures inside those individual nation states which constitute developing countries, deserves constant emphasis.

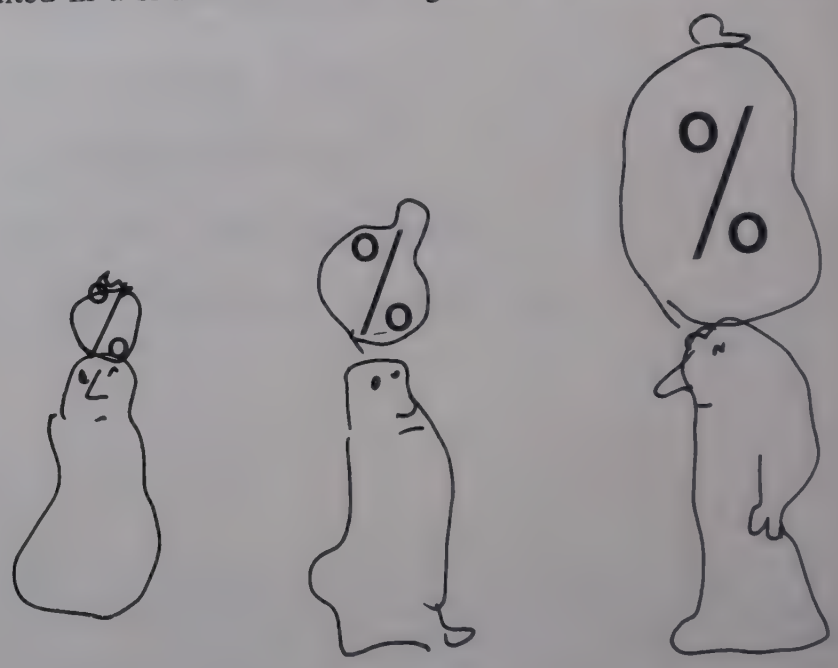
There are also important tools of international cooperation, such as financial aid and technical assistance which, at the present time, fail to make the full impact which they could have as the result of better planning and coordination on a national basis.

Our attack must be two-pronged: the supra-national, or global approach, must be synchronized and harmonized with the national approach.

In one sense, however, the description of the 1960s as a decade of frustration and retrogression is accurate. It is clear that the target laid down by the General Assembly, a certain growth rate of aggregate national income, is less appropriate than a target of per capita income would have been. Essentially, economic development is concerned with the welfare of the people: our objective should be some index related to people.

While the rate of growth in *aggregate* incomes has been slowing down, subject to the statistical uncertainties already indicated, the rate of population increase has been speeding up. Here also, our state of knowledge does not permit us to be quite sure to what extent the data represent statistical reality rather than illusion. It is at least possible that recent figures reflect better coverage of new births and a fuller coverage of the existing population.

However, taking the figures for what they show, the combined effects of the slowing down of the rate of aggregate income growth and the speeding up of population growth, has resulted in a situation where the growth of income per capita



" . . . Firstly, our knowledge of national income statistics in develop be certain that a growth rate of 4¼ to 4½% per annum, character growth rates of 4¾ to 5% per annum characteristic of the early 1

is now only at about half the rate of that of the earlier 1950s: around 1½% per annum as against 3% in the earlier period. On this basis we are half way back to stagnation.

Again, however, if we ask ourselves what the rate of per capita income growth would have been in the absence of unfavorable international factors, my own estimate leads me to believe that the per capita growth in the 1960s would have been faster than in the 1950s, even if we accept the data showing a speeding up in population growth.

In any event, the emphasis on per capita incomes, while providing solid ground for an unfavorable assessment of Development Decade 1, also places the emphasis on the population element, and thus reminds us strongly of the significance of family planning as an addition to more traditional approaches to development.

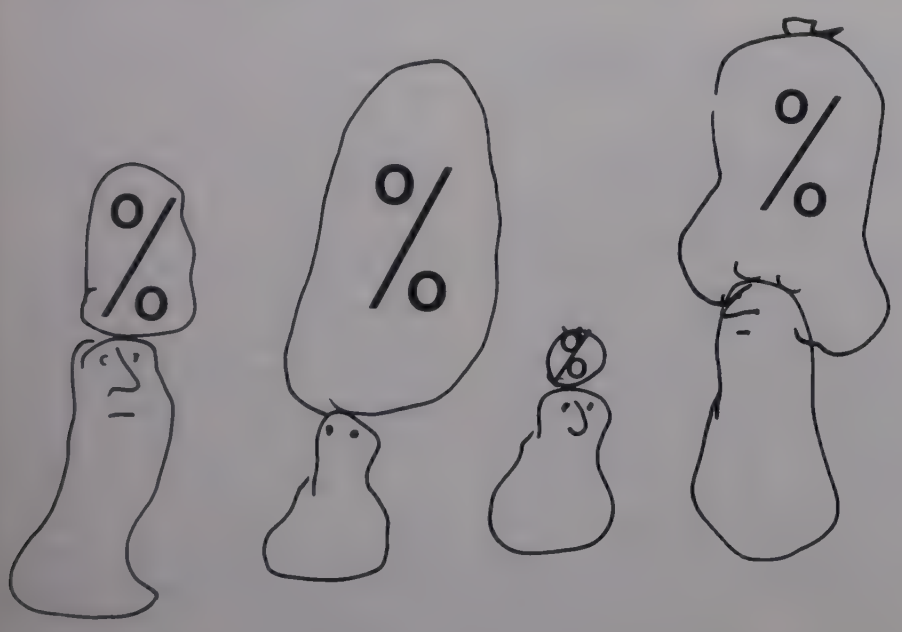
The article by Janez Stanovnik,* with whose basic concepts and objectives I find myself in utter sympathy and indeed complete identity, allows me to develop these comments a little further, and in a different context.

His basic point provides a striking parallel to what I was trying to establish a little earlier in relation to Professor Tin-

* *"UNCTAD 2 - Success or Failure?" on page 50 of Ceres No. 3 (May-June 1968).*

bergen's article. It is now fashionable to proclaim UNCTAD 2 as a failure, as " an UNCTAD of frustration." In some respects this is undoubtedly true, yet let us not underrate the significance of Mr. Stanovnik's observation that one of the main values of such confrontations is that they result in new views which the delegates take home to their own countries, and which help, often in intangible ways, in shaping future decisions.

We have gradually learned in development economics that the biggest impact does not necessarily lie in the tangible and dramatic concrete capital projects. We have, instead, learned to attribute more and more importance to that nine-tenths of the iceberg which is invisible, the human investment, intangible, not easily quantifiable (in spite of many valiant efforts at quantification) and yet more important (as we now know and can even prove) and more fundamental than the



s is by no means sufficiently precise, or sufficiently advanced, to ater 1960's, is really a deterioration compared with the statistical

capital investment.

When we speak of an " UNCTAD of frustration," are we not making the same mistake in identifying development with concrete tangible happenings?

Mr. Stanovnik, like Professor Tinbergen, speaks of an " overall strategy of development." As he describes it, this consists of the interplay between aggregate targets relating to the growth of incomes and aid and trade, and more concrete sectional targets relating to industry and agriculture. This whole series of targets, aggregate and sectorial, is then to interplay in its turn with the national efforts, national achievements and national targets of the developing countries.

Mr Stanovnik emphasizes that national effort and national policies are more fundamental to development, while the international targets and policies are designed to create a favorable setting in which indispensable national effort is given a maximum chance to succeed.

But the question which I want to raise is whether, here again, we are not in danger of underrating the potential and achievements of what has happened since Development Decade 1 was launched some seven or eight years ago.

Let me explain this. We have established the 1% aid target and inevitably questions arise, such as: should not trade concessions to underdeveloped countries be counted as part of this 1% aid target?; should tied aid be really counted as aid when in some respects it resembles trade more than aid?; what about supplementary financing which, in fact, provides a direct bridge between trade and aid?

DD1: landmark of international cooperation

Seen in this light, the simple targets of Development Decade 1 are found to contain the germ of the global strategy which we are seeking. This is indeed recognized by Professor Tinbergen, who calls the 1% aid target a " landmark of international cooperation." It is that, but it is also more than that: it is a point of departure toward newer and broader efforts.

Mr. Stanovnik describes the approach to economic development as symbolized by UNCTAD as a joint venture of developed and developing countries: Professor Tinbergen would, no doubt, fully accept this as practically identical to his statement that the approach to development must be on a supra-national or global basis. I still prefer to define the process of development as essentially a national venture, which can either be frustrated by lack of international cooperation (as happened during Development Decade 1) or which can be helped forward by supplementary international action (as we hope will happen during Development Decade 2).

When I read Mr. Stanovnik's proposal for a Marshall Plan approach to the developing countries, and when I read his description of the proposed procedure by which the developed and developing countries would explain to each other their mutual problems and concessions, I could not help being struck by the similarity between what he proposes and what is actually happening within international consortia and consultative groups.

It is true that in these groups the recipient underdeveloped country is in a minority position, whereas Mr. Stanovnik emphasizes that he wants the discussion to take place within the United Nations where the developing countries would be in the majority. I am not certain how important that distinction really is. Recently, a consultative group met representing the entire new East African Economic Community: the developing countries are not in the minority at such meetings.

Is it not worthwhile to plow further along the familiar furrow of the consortium and consultative group technique on a national basis? Why not build on what we have got? Why not develop these groups into discussion forums in which trade as well as aid can be discussed, not to mention technical assistance, transfer of science and technology and questions of international migration.

This would, in no way, deflate or supersede the value of broader international discussions in forums such as the United Nations, UNCTAD, the International Bank or the International Monetary Fund. It does seem to me to provide a natural alternative, or at least a complementary approach.

National planning, consortia and consultative groups, UNCTAD, global strategies, world indicative plans, targets for the development decade — all these are not different themes. They are but variations on the same theme. ■

in the field

ZAMBIA

■ *Frozen elephant for dinner*

A game-cropping project in Zambia is providing badly-needed protein to combat widespread malnutrition, preserving wildlife species and fostering an important money-making industry - tourism.

The scene is the Luangwa valley in eastern Zambia, one of the richest game areas in the world. It is, however, overstocked with elephants, buffalo and hippopotami to the point where vegetation cannot support the animals. Over the past two years, 1,000 elephants have been killed and taken 50 miles through the bush to a modern abattoir at Mfuwe, the project headquarters. The carcases are cut up, chilled and transported in 50 lb blocks in refrigerated trucks 400 miles to Lusaka where they are sold.

Last year, 278 tons of game meat was brought to Lusaka and this year production will be even higher. Experts have estimated that it will be necessary to reduce the elephant population from 23,000 to 6,000 while some 12,000 buffalo, and some 5,000 hippos will have to be culled.

$7.5 million is being spent by the government on expanding tourist facilities, including a 400-bed luxury hotel at Lusaka and a 100-bed lodge in the Luangwa valley itself.

Wildlife can, under certain conditions, yield more protein per pound than domestic cattle. Game-cropping of elephants, buffaloes and hippos is resulting in more meat in Zambia

COSTA RICA

■ *Beef and bananas on World Bank credit*

A $3 million 20-year loan has been granted by the World Bank to Costa Rica for an agricultural credit program. The loan will provide one half of the funds needed for the program, under which credits will be extended to farmers growing bananas, cotton and pineapples and producing beef cattle, mostly for export.

MALAWI

■ *IDA loans help irrigated agriculture*

Agriculture accounts for almost half of Malawi's gross national product; the key to its economic progress lies in agricultural development. Two zones have been selected for priority development using United Nations funds and technical expertise. One is the plateau area of the Lilongwe, Dowa and Dedza districts (where population density is the highest of the central region) which is suited to intensive production of crops and livestock; the other lies in the hot, humid lowlands of the Shire Valley below Chikwawa in the far south.

The International Development Association (IDA) agreed in 1968 to provide an interest-free loan of $6 million to carry out development of 500,000 acres in the Lilongwe region along the lines suggested by a World Bank report.

A second IDA loan of approximately $3.5 million was also granted this year to increase the production of rainfed cotton over 171,000 acres in the lower Shire area, to include improved practices on 22,000 acres of existing farmland and the settlement of some 15,000 acres of new land.

Still being investigated is the irrigation potential of a further 130,000 acres of the lower Shire Valley. The first development area of 10,000 acres has been selected and work is proceeding on the engineering drawings for an irrigated agricultural development project. The report on this first phase should be completed by the end of 1968: the final report on the entire 130,000 acres will be ready by May 1969.

ECUADOR

■ *Rain forests will increase export earnings*

An investment of $10 million over the next five years in forest industries in the rain forests of northwest Ecuador may eventually bring in an estimated $20 million a year in the country's foreign earnings.

A joint Ecuadorian/FAO

team has begun a pre-investment study of some 3,460,000 acres of forest in the northwest after completing an extensive forest inventory and an aerial photographic survey of about half the area. The government has now signed contract concessions with 14 locally-based companies to develop some 1 million acres of forest land.

IRAQ

■ *Food aid being used to help land reform*

Additional food for settlers improving land being opened up under Iraq's land reform program is being provided by the World Food Program (WFP). The farmers are planting trees and windbreaks, building storage facilities and roads, desilting irrigation and drainage works, establishing fruit tree nurseries and vineyards and developing the livestock industry. Cost of the food aid is $876,000.

CEYLON

■ *Onions and chilies in the highlands*

Some 6,500 acres of high land will be used for the irrigated cultivation of onions and chilies with the help of a $2 million credit from the International Development Association (IDA). The government is providing a further $1.3 million for the four-year scheme.

ITALY

■ *World fish catch nearing its limit*

Fishery experts recently warned that the world cannot expect to catch more than two to four times the annual output of types of fish now commonly harvested from the oceans.

The FAO Committee on Fisheries, meeting in Rome, was told that estimates of potential catches of these fish range from 100 to 200 million metric tons a year, and even these could only be realized if there were successful agreements on international management and protection measures.

The present world marine catch is about 50 million tons. Annual catches have been doubling about every ten years. If this rate continues then the present known resources would be fished to the limit in 15 to 20 years. Catches could then only be substantially increased by shifting to other, as yet unused, marine resources, such as krill — the small shrimp-like fish on which whales feed — plankton and other similar marine animals and plants. Estimates of krill potential alone run to more than 50 million tons.

If commercial fishing continues to increase at the present rate the oceans will be yielding their full potential by 1988

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■ *Training local people to carry on*

The four Misereor-supported projects in Madagascar, costing altogether more than $700,000, have in common an integrated approach to rural development. In each area of operation a pilot zone has been established where the particular problems of the region are identified and tackled.

In Ankerika, in the northwest, primitive agricultural methods were pinpointed as the chief obstacles to good farming. Over the past five years farmers were taught how to train and use oxen for plowing, were introduced to improved tools and were demonstrated irrigation techniques for rice production in the dry season. The project has been so successful that it is being extended for another two years.

Primitive farming methods, such as this enclosure for Zebu cattle, are being discouraged in the pilot areas supported by Misereor in Madagascar

The most pressing problem in Sampona, in the south, is lack of water. Various solutions for trapping and conserving rainwater were studied in the pilot zone as were ways of protecting the soil against erosion and introducing dryland farming techniques. This project is also being extended for another two and a half years.

The third project is at Androvakely, in the west, where improved varieties are being introduced and better storage methods are being developed to reduce food losses. As in all the Misereor projects, local artisans are taught to make and maintain improved agricultural implements and local people are trained for extension work.

This year a fourth project got underway in the Antanimarina area. Improved methods and equipment for rice production and processing will be introduced over the next three years.

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New projects established with FFHC funds

GHANA: A new type of collapsible poultry house costing $90 (as compared to $400 for standard models) has been specially developed for the pilot backyard poultry project to which the Austrian FFHC Committee has given $9,700. Feed for the hens is being supplied through the World Food Program.

CHAD: The poultry scheme supported by Swiss Aid Abroad (SAA) to the tune of $136,757 (reported in CERES No. 1) has been extended until April 1969. A plant which will convert waste from a nearby slaughterhouse into feed for poultry is being built near Fort Lamy at a cost to Swiss Aid of $55,000.

PHILIPPINES: A freshwater fish culture development project supported by the Australian FFHC Committee ($62,254) has shown that at least 3,000 kg of fish per hectare per year can be produced in freshwater ponds (6 times greater than present production). As a result, 31 private projects, covering an area of 600 hectares in 10 provinces, have applied for assistance.

TANZANIA: 1,800 drums have been distributed to farmers' cooperatives in Dodoma, Iringa and Bukene to popularize a storage method which is economically and technically within the grasp of all farmers. This project was supported by $17,405 given by the Austrian FFHC Committee. A day care center has been opened at the Musoma home economics training center, supported by SIDA (Swedish International Development Authority) to the tune of $1,056,315. An advisory council, composed of regional representatives of all ministries concerned with women's programs, has been set up to ensure more organized contact between regional officials and the center.

LESOTHO: A $20,000 program to teach agriculture and home economics to rural young people is being partly financed by the U.K.'s Christian Aid ($12,285). The money will be used to strengthen existing youth clubs, to start new clubs and to train government extension staff and youth leaders. An associate expert, made available by Finland, will help with vegetable gardens, woodwork shops and fertilizer trials and demonstrations.

CAMEROON: A project to assist young carpenters has been adopted by Entraide et Fraternité (Belgium) for $5,200.

DAHOMEY: Further funds have been received for the animal draft power project (described in CERES No. 2): $20,000 from Fonds national pour la coopération au développement (Belgium); and $29,000 from Misereor (Germany).

The Canadian Freedom From Hunger Foundation has contributed $6,000 toward the fishing boat mechanization project.

The U.K. Oxford Committee for Famine Relief (OXFAM) earlier this year donated $10,000 for a center to teach illiterate Dahomean boys and youth-club members to grow crops and raise animals. Four more centers are to be set up under a three-year FFHC project to which the Government, as part of its back-to-the-land campaign, will contribute $37,000 of the total $95,000 cost.

IRAN: $32,000 has been donated for the second phase of the Dusadj project by Nebuta, Novib and WCC-Netherlands.

PARAGUAY: The World Council of Churches has contributed $5,000 to a reafforestation project.

SENEGAL: Entraide et Fraternité (Belgium) has given $5,200 for a hay-making and cattle-feeding project.

PAKISTAN: The vaccination campaign to eradicate Newcastle's disease and fowl-pest among the 20 million poultry of East Pakistan — to which OXFAM donated equipment for producing vaccines — has shown excellent results. By the end of 1967 half of East Pakistan had been covered and the percentage of immune birds rose from 17% to 88%. The program will be expanded this year and the Austrian FFHC Committee has donated $17,600 for additional laboratory equipment. The Irish FFHC Committee has donated $96,300 to pay for the laying down of sprinkler irrigation in Rawalpindi, while the Danish Board has given $52,500 for the control of animal parasitic diseases in Comilla.

Tanzania: the scoured oil drum will provide airtight storage at low cost to farmers' cooperatives

GUATEMALA: The Catholic Relief Services seed project has changed dietary habits in the Nahula region. A CRS grant of nearly $1,000 provided seeds for carrots, peas, radishes, cucumber, beet and broccoli.

KENYA: Three U.K. FFHC projects totaling £78,000 will soon become operative. The largest (£48,000) is to provide mobile veterinary units to serve African smallholders who own European cattle. The aim: to prevent losses of meat and milk from cattle diseases. Another project (£24,000) is for the improvement of grain storage at farm and village level where pests can devour as much as one third of the crop. Also £6,000 has been allocated to train small traders to protect their grain and to supply them with simple storage protection equipment.

VENEZUELA

■ $ 5.4 million for better fishing

A five-year fisheries research and development project for Venezuela got under way this year. The project calls for international experts, fishery surveys and experimental fishing as well as the training of Venezuelan personnel in research and fishing techniques. FAO is managing the project and is supplying a fishery research vessel for experimental purse seining and trawling in the Caribbean Sea and Atlantic Ocean. Venezuela is paying for more than $4 million of the $5.4 million UNDP project.

FERTILIZER PROGRAM STARTS UP IN ASIA

Demonstrations of how to apply fertilizer are being carried out in 25 countries under the FAO program financed by the world fertilizer industry. Latest developments:

...In Kenya, a country-wide program of trials and demonstrations on maize and other crops will start in September.

...In Tunisia's northern region, trials and demonstrations on wheat and citrus crops started in June.

...In Ethiopia, the Danish government is financing a pilot fertilizer credit and marketing scheme to begin this coming summer.

...In India, more than 1,000 tons of urea fertilizer, supplied by the U.K. fertilizer industry, are being supplied to community development blocks in Uttar Pradesh.

...In Indonesia, the Centre d'Etude de l'Azote has agreed to give $30,000 to start a fertilizer demonstration program.

PHILIPPINES

■ Better cows and more milk reported

Farmers at the Philippine Dairy Training and Research Institute have reported that milk production per acre has risen by about 200% in the five years since the FAO/UNDP project started. The number of artificial inseminations to improve private herds has increased from 150 in 1963 to 7,000 last year.

DOMINICAN REPUBLIC

■ New forests for old

A $1 million UNDP forestry project aimed at restoring the lost forests of the Dominican

Current FAO projects

▲ *U.N. Development Program (Special Fund) projects.*

● *All other technical assistance projects being carried out by FAO: U.N. Development Program (Technical Assistance); World Food Program; Freedom-from-Hunger Campaign; Trust Funds; FAO/UNICEF and other joint projects.*

REGIONAL AND INTER-REGIONAL PROJECTS
(not included on the map)

Africa	▲5 ●12
Latin America	▲4 ●22
Asia & the Far East	▲1 ●16
Near East	●13
Pacific Territories	●1
Inter-regional.	▲1 ●10

Republic will soon be fully operational. An inventory of the country's forest resources will be carried out over the next four years, together with the establishment of demonstration areas, and of the country's first forest training school.

SUDAN

■ *Food aid helping to settle Ethiopians*

Nearly $1 million-worth of food aid is to be used to help feed 20,000 Ethiopian refugees living in camps at Kassala and to resettle them some 300 kms in from the border. The project will help sustain refugee families until they reap crops from land provided by the Sudanese government. The World Food Program (WFP) has already provided $344,000-worth of emergency aid.

NIGERIA

■ *Canadians train Nigerians to man the dam*

The first dam on the Niger river, at Kainji about 300 miles north of Lagos, is being internationally financed by loans from the World Bank ($72 million), Italy ($22 million), the United Kingdom ($12 million), and the United States ($6 million).

The Canadian government has provided a grant of $1.4 million and $167,000 for technical assistance. A team of experts from the Ontario Hydro-Electric Power Commission is to oversee the running of the electricity plant and will also train 200 Nigerians to take over the plant at the end of the three-year project

CHILE

■ *1,000 trainees for agrarian reform*

A loan of $680,000 has been granted by the Inter-American Development Bank (IDB) to the Agrarian Reform Training and Research Institute, established under a UN Development Program (UNDP) project

The second phase of this project was recently approved, which means that the present training, research and advisory activities will be extended and expanded till the end of 1970.

So far, nearly 1,000 Chilean technicians and professionals have undergone training at the Institute in the fields of sociology, project planning and farm management, credit and cooperatives, rural labor, agrarian legislation, social and community development, and training methods and extension. (See the article by Jacques Chonchol on page 41 of CERES No. 3).

JORDAN

■ *Network of animal health centers*

The network of animal health centers in the Near East has been expanded with the establishment of an Animal Health Institute at Amman. About 25% of potential animal production in Jordan is lost each year through disease.

The Lebanon unit specializes in detection and control of poultry diseases

The new Institute will emphasize animal disease diagnosis and vaccine production and will have facilities for training and research. It will cost the Jordanian government $446,000 and the UN Development Program (UNDP) $810,000. Its activities will be coordinated with other similar UNDP - aided establishments in Iran, Iraq, Lebanon and the United Arab Republic.

TOGO

■ *Choosing the land rather than the city*

In order to encourage young Togolese to become farmers, rather than emigrating to the cities in the hopes of white-collar employment, the government-backed youth movement, Jeunesse Pionnière Agricole, is setting up clubs in villages throughout the country where young men are taught modern farming methods.

The center of agricultural operations of the JPA is the farm training school at Glidji, about 40 miles from Lomé. The farm has 100 acres under cultivation. Poultry, oxen and goats have been supplied by Israel as the first phase in teaching animal husbandry. Food is provided for the first year of operation by the World Food Program. The students receive a six months training course and then return to their villages to put into practice what they have learned.

The JPA encourages youths to form agricultural clubs in upcountry villages, some of which are run on a cooperative basis. In Togodo, in southeastern Togo, 50 Glidji graduates have reclaimed 150 acres of dense bush which is now about to produce its first crops. Efforts are also being made to include girls in this pioneering work.

DAHOMEY/NIGERIA

■ *Investigating taboos and food habits*

Mixed gardens, in which all the plants are grown together often in a semi-wild state, are typical of the humid tropical lowlands of southeast Asia.

They are being introduced into West Africa for the first time through NEDERF, a Dutch Foundation, which has given more than $500,000 for two home garden projects: one in Dahomey and the other in Nigeria.

This year, a Dutch sociologist will spend nine months at each project studying local food habits and their relation to superstitions, taboos and other social factors as a part of the attempt to encourage consumption of nutritious indigenous foods.

The Nigerian project has led to the establishment of a mothercraft center, in cooperation with UNICEF and the Dutch 'Gast aan Tafel.' Women whose children have been hospitalized for illness due to malnutrition are given lessons in hygiene, nutrition and home economics. The children themselves are given daily medical attention.

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Africa and the Common Market

by P.N.C. Okigbo

The roller-coaster relationships between various African countries and the European Economic Community (EEC) and between African states not associated with the Community, are explored in this book. It is undeniably a topical book at the present time in view of current negotiations to renew the Yaoundé Convention.

Mr. Okigbo is one of the best of Nigeria's university teachers and economists. He has been an economic adviser to the federal government for many years. In the latter capacity he negotiated special provisions for a privileged agreement between Nigeria and the EEC which was signed at Lagos in July 1966, but which, unfortunately, did not come into force because of the constitutional crisis and the secession of Biafra. He was made a member of the African Scientific Council in 1963.

Mr. Okigbo devotes three chapters to the EEC machinery and the principles governing the Convention of Association with African countries with the aim of enlightening Anglo-Saxon readers. He might, perhaps, be criticized for being too didactic and for giving insufficient emphasis to various political problems which have marked the growth of association between African countries and the Community of the Six.

His book does refer, on the other hand, to the delicate problem of stabilizing the prices of raw materials, which was the stumbling-block during negotiations on the second European Fund and over the new Convention of Association which came into force for the 1964-69 period.

Negotiations among the Six, and between the Six and the African countries, took a very long time. France had solved the problem of price stabilization in a very simple way: by creating stabilization funds and letting her former colonies benefit by higher prices which protected them against fluctuations in the prices of the main tropical products. The French market was also a preferential area for African and Malagasy produce.

Other countries, such as the Netherlands and the Federal Republic of Germany, would not grant unqualified preferences to African produce because of pressure from their traditional customers in Latin America and the Middle East. France, therefore, had to undertake to gradually abandon the system of higher prices, at which the African states asked for some compensation for the losses caused by the relinquishment of this system.

The Yaoundé Convention provides for the creation of a zone for the free traffic of goods, including free access by the associated states to the Common Market, on the one hand, and the opening-up of their markets to the products of the Six, on the other.

As head of Nigeria's delegation to EEC, Mr. Okigbo deals with the problems of association of other African countries, particularly Nigeria, with the EEC. His book contains two excellent chapters showing how Nigeria has to compete with the EEC-associated states in the field of various products, such as cocoa, palm-oil, groundnuts and timber.

Mr. Okigbo thinks that, under present technical and administrative conditions, the agreement between Nigeria and the European Community goes beyond the framework of a preferential zone and corresponds to the establishment of a free trade area. At the end of his book, he hopes that discussion over renewal of the Yaoundé Convention will favor the principle of a free trade area over the principle of association, thus echoing one of the first arguments of the British government on this European problem.

Unfortunately, the flaw in Mr. Okigbo's work, as in many books on present-day Africa, is that history flows faster than commentary; one can already imagine renewal of the Yaoundé Convention without such fundamental changes.

This is not to say that negotiations in the coming months will not be difficult. In fact, the African countries, particularly those belonging to the African and Malagasy Organization (OCAM), have pertinent criticism to present to the Six, which is not emphasized enough.

The OCAM countries are dissatisfied: they think that the clauses of the Yaoundé Convention have not been sufficiently observed. Imports by the Six from other countries of the third world have been much greater than those from the African and Malagasy countries.

The most typical example is imports of bananas from Latin America, the value of which is said to have soared by nearly 64% between 1964 and 1966, as against an increase of about 11% in sales of African bananas. OCAM also harbors a grievance against the Federal Republic of Germany because German importers prefer to continue buying from their traditional sources of supply.

The second criticism by the African countries refers to the prices of tropical products which have been constantly dropping over the past ten years. For instance, the price of a ton of bananas (Ivory Coast), which was $131.32 in 1958, fell to $87.39 in 1965, a drop of 34%. Cameroon's cocoa sales declined by 55% in the same period.

At the same time, remuneration of farmers' work has declined between 1958/59 and 1965/66. For example, in a "rich" country such as Ivory Coast — where 87% of the coffee and 95% of the cocoa are produced by peasants on small holdings — income went down from $0.47 per kilo of coffee in the 1958/59 season to $0.30 in the 1965/66 season; cocoa dropped from $0.36 a kilo in 1958/59, to $0.22 in 1965/66.

The third criticism, incidental to the other two, is the constant deterioration of the terms of trade. A ton of Ivory Coast coffee would buy 18 tons of cement in 1965, compared with 24 tons in 1958. A ton of Ivory Coast cocoa paid for about 14 tons of cement in 1965, as against some 20 tons in 1958. A ton of Cameroon cocoa bought only 800 meters of cloth in 1965, whereas the same ton would buy 2,700 in 1960. It is regrettable that Mr. Okigbo did not deal with these problems, but he lacked data gathered by OCAM at the end of 1966 and during 1967.

In the last analysis, what OCAM wants is that the slogan "fair trade is better than aid" should be applied in practice.

At all events, Mr. Okigbo's book gives food for thought and poses problems. Although the statistics in his book are no longer conclusive, one cannot but praise his analysis of the important problem of

inter-African trade.

Any observer of African problems cannot help realizing how small this volume of trade is. Imports of African products by the Equatorial Customs Union, which groups the countries of former French Equatorial Africa, totaled only 7.7% of total imports in 1965; exports amounted to only 8.6%.

As Mr. Okigbo says, the problem of the African common market cannot be taken as a whole. It must be tackled on a regional basis. This points to the experience of East Africa and of French-speaking countries in West and Equatorial Africa.

He ends his book with an analysis of prospects for tightening economic and commercial bonds, and voices the hope that African economic integration will come about soon. In this he foreshadows the initiative of Moktar Ould Daddah, President of the Islamic Republic of Mauritania, who organized a first meeting of heads of state of English- and French-speaking countries in West Africa at Monrovia in April, 1968, to discuss an economic community. The next conference, to be held at Ouagadougou, will show whether French- and English-speaking countries are really anxious to cooperate, and whether an African common market is feasible. There is no doubt that a very long road lies ahead.

Guy de Lusignan

Africa and the Common Market, by P.N.C. Okigbo.
Longmans, London, 1967 (183 p.), 27s. 6d.

NO EASY HARVEST

by Max F. Millikan and David Hapgood

Of making many books — on world agriculture and its relation to the ominous problem of world hunger — there is no end. It is perhaps one sign of an awakening world conscience that it should be so. In the course of the last few years there have been numerous admirable publications in this field: some have been coldly factual and scientific, others have set out deliberately to create alarm and apprehension in the reader and, by so doing, perhaps to perform a service. The subject, after all, is of vital concern to everyone alive today, and it can certainly be numbered among the most important of the many problems confronting our bedeviled and harassed world.

No Easy Harvest carries no apocalyptic pronouncements of impeding doom. It is a reasoned, well-written and informed presentation which recognizes the magnitude of the problem, but which avoids both polemics and hysteria. It is chary in its approach to economic forecasting, and it tries — for the most part very successfully — to indicate the paths which must be followed if the underdeveloped countries are ever to move out of their deepening slough of despond.

The authors went about their task by consulting specialists in a wide variety of technical fields: it is interesting to note that — in addition to agronomists, soil scientists, specialists in plant production, fertilizers, water conservation, pesticides, land reform, agricultural economics and other relevant subjects — they included anthropologists, sociologists, and psychologists. Such experts are all too frequently ignored by agricultural planners, though they can undoubtedly make a notable contribution when great schemes are being formulated which are likely to affect the lives and the social conditions of tens of thousands of people.

Having picked the brains of all these experts, the authors were then successful in persuading the U.S. Agency for International Development, in cooperation with the Center for International Studies at the Massachusetts Institute of Technology, to establish a study group to deal with problems of agricultural productivity. The book is in large part a product of that exercise. It is a volume which will be of interest to everyone concerned with the complexities of agricultural development. It will, with benefit, be consulted by specialists. It is unfortunate that its message is unlikely to reach those who are not already converted to its thesis.

The scope of the book is wide and it involves searching examinations of land reform, the rice areas, the rain-forest tropics, the monsoon regions and the high altitude zones. It avoids clichés and euphemisms: an underdeveloped country is precisely that and should not be classified as "less advanced" or given any other appellation which might tend to detract from the grim realities of the situation.

Recurrent themes include the imperative necessity of improving and extending education at all levels, and the danger of transplanting technologies to environments in which the ecological circumstances may militate against their success. The authors comment soberly: "the long record of failure in such transplants is a warning that the process is not as easy as it appears. Time and again, crop varieties, cultural practices, credit schemes and organizational patterns have failed to produce the expected results when introduced into a new environment." To that brief list they might well have added breeds of exotic livestock, the introduction of which too often results in costly and even spectacular failure.

The authors draw attention to the fact that — as is very right and proper — all specialists regard their own specialization as the most critical to any form of development. The standard prescription is "Do something about my factor first — and the others will follow."

Animal production scientists will feel that it is a matter of regret that the book does not deal in greater depth with anim

usbandry and the important and no less asy harvests of meat, milk and eggs. he integration of livestock into patterns agricultural development deserves attention in an important work of this nature.

The formidable list of experts who contributed to the substance of the book includes many professors, senior government officials, international civil servants and representatives of foundations active in the underdeveloped areas of the world.

With such a wealth of information and informed forecasting before us we may well query the statement of St. Thomas Aquinas that "a shepherd who cannot read will know more about sheep than the wisest bookworm." It is among today's great tragedies that there are so many shepherds who cannot read, and so relatively few wise bookworms.

No Easy Harvest has a useful index, a lack of which is all too common in books of this type. A selected general bibliography, in addition to the scrupulous references which are made throughout the text, would have been of value to the serious student. The anonymous artist is to be commended for an effective jacket.

The message of the book is summed up in its final paragraph: "The key to agricultural development lies less in any specific projects than it does in an approach that combines sound technology with social strategies. Such an approach requires a high degree of creativity and determination on the part of both agencies of change and the political leadership of the underdeveloped nations."

W. Ross Cockrill

No Easy Harvest: The Dilemma of Agriculture in Underdeveloped Countries by Max F. Millikan and David Hapgood.
Little, Brown and Company, Boston (178 p.), $5.75.

The Rockefeller Foundation Approach

CAMPAIGNS AGAINST HUNGER

by Stakman, Bradfield and Mangelsdorf

The 'campaigns' of the title of this book are the agricultural development programs carried out by the Rockefeller Foundation. The first of these, which began in Mexico in 1943, helped to raise the country's production of maize, wheat and beans — the three staples — by 300% in 20 years. In the same period, Mexican population increased by 70%, but despite this Mexico changed from a grain-deficient country to one with a slight surplus for export. This astonishing achievement encouraged the Foundation to turn its attention to other countries, where it is still hard at work.

The philosophy behind the Rockefeller Foundation's agricultural programs is to bring about increases in per-acre yields by carrying out research, and by then exploiting the results of the research through education and extension. Their research is, at all times, practical and has some outstanding achievements to its credit, particularly in terms of plant breeding. The development of high-yielding, disease-resistant crop varieties was the key to Mexican success and Mexican dwarf wheats, developed with the help of the Foundation, are now also giving excellent results in many other countries.

Rockefeller Foundation scientists have produced, and still are producing, spectacular results. For example, there are new rice varieties (developed at the joint Rockefeller/Ford Foundation International Rice Research Institute in the Philippines) which can yield 8-10 tons per hectare, instead of the Asian average of 1-2 tons, and millets and sorghums that yield 70-100% more than the local Indian varieties from which they were bred.

These unassailable achievements compel admiration, but obviously the results of research alone, without complementary education and extension, can do nothing to overcome a nation's food shortages. And one gets the impression that these complementary aspects of the Foundation's programs are not yet gathering momentum within other countries as they did in Mexico, despite the fact that, for example, wheat yields in Colombia have been doubled since 1950.

The authors are optimistic about extending the Mexican pattern to other parts of the world, but perhaps they underestimate the difficulties that lie ahead, for they give insufficient credit to the very special circumstances that favored the Mexican program. It must have been considerably helped, for example, by the simple factor of the country's geographical proximity with the United States: to have such a technologically advanced next-door neighbor is bound to stimulate a country's interest in progress. Mexico was also unique in having completed its land reform and thrown off the yokes of *latifundia* and punitive share cropping — some of the greatest obstructions in the path of agricultural progress.

Private institutions, such as the Rockefeller Foundation, do have a trump card in their hands: they can involve themselves in aid programs purely on a basis of where they think they can accomplish something, and they are less bound by peripheral interests to continue the program if it is not going well.

The Rockefeller Foundation's successes to date are ably described by the authors, the 'Three Ancients' of the Foundation's agricultural development programs (their long association goes back to 1941 when they went to Mexico to assess how the Foundation should apply its efforts to agricultural development there). The story they tell might have benefited by a greater lightness of touch, and the writing is often self-conscious: one occasionally gets the impression that the scientist authors were striving for literary impact, and they have, as a result, developed some stylistic mannerisms that become irritating. These are small points, however, and, overall, the book is immensely informative — a must for anyone seriously interested in agricultural development.

Colin Fraser

Campaigns Against Hunger, by Stakman, Bradfield and Mangelsdorf.
Belknap Press of Harvard University, 1967 (328 p.), $7.50.

NEXT: FRESHWATER FISH

Two reference books by S.D. Gerking and W.E. Ricker

With our oceans reaching near-capacity for fish production, the turn to freshwater fish is inevitable, and there seem to be good prospects for increasing the catch.

The International Biological Program (IBP) Sectional Committee on Productivity of Freshwater Communities (PF) is attempting to provide the stimulus and act as a focal point for initiating the needed research. The challenge to meet human needs for food is a strong one and must be met immediately.

Two recent complementary volumes on freshwater fish production, published as a result of IBP initiative, should prove exceedingly valuable to fishery officers, especially in developing countries.

They are the result of a technical meeting sponsored by the IBP Committee and held at Reading University, England, in 1966. The meeting was divided into two parts: a symposium which produced the volume *Biological Basis of Fresh Water Fish Production,* and a working party which compiled IBP Handbook No. 3, *Methods for Assessment of Fish Production in Fresh Water.*

The symposium, consisting of 21 papers by invited contributors, was divided into five categories: (1) vital statistics of populations, (2) relations of fish populations to the food supply, (3) competition and behavior, (4) predation and exploitation by man, and (5) the contribution of freshwater fish production to human nutrition and well-being.

The first category deals with various subjects which enter directly into the calculation of production, such as recruitment, growth, survival and population abundance. The next three categories are secondary in the sense that they represent a variety of factors tending to limit one or more of these basic measurements. The last category is a look at the contribution which freshwater fish production is making to human nutrition and well-being and at what the prospects are for future improvement.

The papers present an excellent review of the current status of knowledge in the areas covered and suggest profitable lines of future research. They also provide a background of information for the methodology given in the handbook.

The handbook contains 13 chapters dealing with: capture; sampling and examination of fishes; identification; marking and tagging; age and growth; estimation of population number and mortality rates; eggs and early life history; production; food analysis and rates of digestion; estimation of food consumption; causes of mortality; appraisal of a fishery; and the experimental approach. A useful appendix gives a list of symbols and scientific fish names used in the text. Tables of equivalent values and exponentials from e^{-3} to e^{3} are also included.

It is to be emphasized that the methods described are *recommended* for the purposes of IBP work, but are not universally *agreed.*

Methods, of course, change and must change with further investigation and accumulation of data and experience and are thus not to be considered sacrosanct. Nonetheless those presented can be recommended as a starting point.

Both books should become a standard addition to all fisheries libraries, and most individual workers will also wish to have their own copy.

As a part of FAO's contribution to the IBP it is undertaking the translation of the handbook into French and Spanish. It is not known at this time when the translations will be completed and published. Meantime, perhaps, libraries in the French- and Spanish-speaking countries might consider acquisition of the English version to assist their workers pending translation.

W.C. Beckman

The Biological Basis of Freshwater Fish Production, edited by Shelby D. Gerking; and *Methods for Assessment of Fish Production in Fresh Waters*, IBP Handbook No. 3, edited by W.E. Ricker.
Blackwell Scientific Publications (for the International Biological Program), Oxford and Edinburgh, 1967 (495 p.), 105s., and 1968 (313 p.), 42s., respectively.

International Agricultural Institutions

A handbook by Jan and Arnost Tauber

The two authors set themselves a task that has only rarely been tackled. Their book, translated from Czech into German, is the only up-to-date handbook giving an overall view of international agricultural institutions. The last work conceived along the same lines was published in French in 1951. The fact that this handbook has been published in German will certainly limit the number of readers, but attention should be drawn to it because of its unique nature.

The handbook combines information and analysis. The authors evaluate the major guidelines of international collaboration in chapters on: the origin and development of the first international agricultural intergovernmental summit organizations; and, international institutions dealing with general agricultural problems.

Their analysis covers the work of FAO, the International Federation of Agricultural Producers and the European Confederation of Agriculture, as well as the part played in agricultural matters by international organizations such as the United Nations, OECD and Comecon. It also looks at solutions to agricultural problems offered by the European Economic Community.

Following this group of 28 general institutions, the book reviews 159 specialized international intergovernmental and nongovernmental institutions. They are grouped according to fields of activity. Their program of work is outlined and other aspects are mentioned, such as their official purpose, their competence, composition of membership and cooperation (or consultative status) with other international institutions.

Other facts covered include membe

ship fees, periodical publications, date of foundation or reorganization and similar information which helps the reader to place each institution in perspective.

An effectively compiled index enables each institution to be quickly located by means of four different cross references.

While granting that works of this kind are rare, I should like to complete the documentation listed at the end of the volume by adding the three synoptic works offering an overall analysis of international agricultural institutions which, to my knowledge, appeared prior to this handbook: *L'organisation internationale de l'agriculture,* by F. Houillier (Paris, 1935); *Vade-mecum des principales organisations internationales* by André L. Geisendorf (Vol. 5 of the publication of the European Confederation of Agriculture, Brugg, 1951) and *Les institutions de la coopération internationale dans la domaine de l'agriculture,* by the author of this review, published in German (Winterthur, 1961).

The first and third of these studies do not claim to be complete and are largely economic analyses of the activities of various institutions. The second work deals with about 100 international institutions and is in the category of handbooks.

The main difficulty in compiling such a work, as the authors point out in their foreword, is in gathering together the vast amount of data and keeping it up to date. It would be desirable, precisely for this reason, for a limited circle of researchers to cooperate in a subsequent edition under the sponsorship of an international organization or foundation.

Marcel B. L'Eplattenier

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Choice of Techniques, by A.K. Sen.
Basil Blackwell, Oxford, 3rd. edition 1968 (113 p.), 25s.

Economic Development in East Asia, by E. Stuart Kirby.
Allen & Unwin Ltd., London, 1967 (253 p.), 50s.

Crop Nutrition, by K. M. Pillai.
Asia Publishing House, London, 1968 (126 p), 15s.

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Geographical Publications Ltd., Bude, Cornwall, 1968 (63 p.).

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Sydney University Press, Sydney, 1967 (349 p.), 48s.

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Faber & Faber Ltd., London, 1967 (163 p.), 30s.

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Editorial Universitaria S.A., Santiago de Chile, 1967. (224 p.), 18 pesos M/N.

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Frederich A. Praeger Inc., New York, 1967 (209 p.), $12.50.

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Overseas Development Institute, London, 1968 (112 p.), 25s.

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Princeton University Press, Princeton, 1965 (431 p.), $2.95.

The following is a list of the various specialized indexes issued so far by the FAO Documentation Center (see the article on page 25 of CERES No. 3).

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Ceres was adopted as the name of this review because of its close association with agriculture, particularly the growing of food crops. *Ceres*, the Roman version of the Greek goddess Demeter, has its equivalent in most languages just as *Ceres* herself, symbol of agriculture and representing mother earth, has her equivalent in most cultures.

A terracotta of the goddess and her daughter which was made in Corinth about 620 BC

By the beginning of the Roman Republic, Sicily was known as the center of the worship of both *Ceres* and her daughter Persephone. *Ceres* herself was then considered as the most ancient and venerable of all the gods and goddesses. During the famine which the Romans suffered after the expulsion of the Tarquin monarchs, the dictator Tulio Postumio consulted the Sibylline books which advised that the worship of *Ceres* should be established in Rome. A temple to *Ceres* was therefore built in 493 B.C. on the Aventine hill (near the present site of FAO). *Ceres* was then regarded as the goddess of food grains and patroness of the corn trade.

Ceres also adopted Triptolemus, the son of Celeus, and initiated him in the arts of agriculture. He became identified as the deity of agricultural crafts, and in some legends is named as the inventor of the plow.

The attributes of *Ceres* are chiefly connected with her position as goddess of agriculture and vegetation: ears of corn, the poppy, the mystic basket (kalathos) filled with flowers, corn and fruits of all kinds, the pomegranate being especially common. As the earth goddess she is often associated with the snake, myrtle, asphodel and narcissus.

Letter to the Reader

The debate on the present development decade and on the future world plan, launched in our previous issue, is now in full swing. With this number, Professor Singer enters the fray: is the growth percentage of the gross national product the proper criterion for evaluating a country's progress? Which is the more suitable level for planning economic growth — at the nation-state or at the global level? These questions dealt with by Dr. Singer arise whenever development, the basic theme of our half-century, is discussed.

The most serious danger lying in wait for us is to abandon ourselves solely to a sense of justice. It has become commonplace by now to state that the gap between rich and poor countries is widening, that the rising birth-rate keeps down the standard of living and that there is an evident disproportion between effort expended on development and its effectiveness. We despair, without letup, at the selfishness of men and of nations, we bemoan vetoes on cooperation and action motivated by narrow political considerations. We lash out at the international managers of 'Operation Development' because of their lack of boldness, their high-salaried staff and their petty jealousy over selfish prerogatives. All this disturbs our sense of justice and forces us to admit that, even if results are achieved here and here, they are minuscule compared with the enormous imbalances that continue to plague us.

But while we are paying our tithe to a sense of justice, we are ignoring that of reality.

This leads us to one of the main points in our dialogue on global development planning: the fact, the reality of nation states. In preparing a world plan, one has to reckon with facts, such as these: Mauritius — the youngest independent state, and the latest to join the United Nations family, with some 800,000 inhabitants living over an area of 1,600 square kilometers; the Soviet Union, one of the founders of the U.N. with 230 million people spread over 22 million square kilometers; annual per caput income is 38 dollars in Malawi and 2,893 dollars in the United States.

These facts, however well-known, are not only geographic, demographic and economic; historically, they are also factors of national sovereignty. Sovereignty is not quantifiable; it is the most propitious framework for dynamic growth and development.

Yet it would be proof of short-sightedness if we stopped here. Development, today, cannot be envisaged within the framework of a single country. The process is indelibly marked with the need for national interdependence; and this involves voluntary limitation of sovereignty for all nation states, both large and small. Those countries which have come of age, and have lived and enjoyed their sovereignty to the full, are obviously more inclined to grasp this need than the new countries which are jealous of their recent newly-found identity. Thus, we face the need to work out a global plan which marries principle of sovereignty that has dominated the past two centuries with the need for voluntarily limiting that sovereignty. Each of these two points-of-view, each of these two facets carries a positive, dynamic charge. To find the point of juncture, to exploit the advantages offered by each of them — this, in our opinion, merits a high place amongst our priorities in working out a plan for tomorrow. A. Biro

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